

Low-cost airlines are admired for their success. Following a template for simplicity set out by Southwest, each low-cost carrier has created its own strategy, and achieves low unit costs by extracting efficiency from each cost element. How far can traditional airlines go to match this performance?

The difference in unit cost performance of low-cost & major airlines

The success of low-cost carriers (LCCs) has prompted many observers to embrace these airlines as the optimal airline model, branding traditional business models obsolete. This attitude towards traditional airlines is based mainly on the cost differential the two approaches have. Many traditional airlines now have to generate real and permanent cost savings, or face extinction. This warrants an examination of the elements that generate the difference in unit costs between the two brands of airline.

The high cost levels of traditional airlines often place them at a disadvantage when compared to LCC rivals. In Europe, easyJet and Ryanair, among others, have hurt the profitability of network carriers. The trend is repeated in Australia, Asia and the US.

If the recent track record is used as an indicator, LCCs are outperforming their rivals. Ryanair, for example, has a higher market capitalisation than British Airways (BA).

When analysing LCCs' performance it is important to understand where their cost advantage is derived, how these advantages are leveraged to boost operational efficiency, and the responses network carriers could have. Many network carriers are embracing low-cost models and redesigning their businesses around cost efficiencies. Their scope for change may be limited, however, due to the inherent differences in their business models. A detailed analysis of LCC operations reveals the major cost benefits that these airlines enjoy over their rivals.

Low cost models

LCCs are often cited as the airline business model of the future, with many airlines emulating the successful strategies of Southwest and others. LCCs were designed around a market opportunity: provision of cheap air travel accessible to more people, all made possible by adopting a simple airline strategy.

LCCs promote simplicity in all areas,

from fleet commonality to pricing and revenue management. LCCs are not immune to market conditions, however. The proliferation of LCCs has resulted in many having to fly in direct competition against high-cost rivals, the first competitive European route being London-Rome (STN-CIA), with Ryanair and Go (now easyJet).

The rate at which LCC carriers have expanded in three years is illustrated by examining how their route networks have grown over the period. For example, the growth in jetBlue's network can be seen by comparing its September 2000 route network to its network for August 2003 (see charts, page 14). These show jetBlue's increased reach.

In 2000 jetBlue flew to 14 destinations and produced nearly 41 million available seat-miles (ASMs) per week. In 2003 is offering 22 destinations and producing nearly 318 million ASMs per week.

Increased competition has already initiated industry consolidation in Europe, with easyJet purchasing Go and Ryanair purchasing Buzz.

LCCs rely on cheap distribution channels, using the internet and telephone sales to avoid travel agent fees. Ryanair receives about 95% of its total bookings via the internet, compared to about 8% for BA. The disparity in internet bookings alone accounts for significant efficiencies. Airlines are trying to force as many people as possible to book direct to reduce costs.

Airline management

LCCs have fewer people in commercial roles, due to their simplicity of operations. The majority of staff are customer-facing. 61% of easyJet's staff are cabin and flight crew, and only 12% are management. This is in contrast to

COMPARATIVE AIRLINE STAFFING RATIOS OF TRADITIONAL AND LOW-COST AIRLINES IN EUROPE & THE US

Airline	Staff	Fleet size	Staff per aircraft
British Midland	4,800	41	117
British Airways	61,400	348	176
easyJet	3,315	73	45
Ryanair	1,900	57	33
US Airways	28,400	279	102
Southwest	35,000	381	92
jetBlue	3,800	46	83
AirTran	5,600	81	69



many traditional carriers, where customer-facing staff account for about 40% of the overall total, and management account for 25-35%. In the US, 31% of US Airways's total staff is cabin/flight crew and 21% are management.

Total staff levels can be examined by using a ratio of staff to each aircraft (see table, page 12). BA has 61,000 staff and 340 aircraft, equating to a staff to aircraft ratio of 178:1. This is skewed by BA's long-haul operations, which require more staff.

Predominantly short-haul British Midland has 4,800 staff and 41 aircraft, giving a staff/aircraft ratio of 117:1 (see table, page 12).

By comparison, easyJet has 3,315 staff and 73 aircraft, for a ratio of 45:1. Ryanair has 1,900 staff and 57 aircraft, for a ratio of 33:1 (see table, page 12).

In comparison to a LCC, European majors have up to twice the staff per aircraft. LCCs outsource ground-handling, maintenance and other non-core functions, a process that more airlines are beginning to follow. Outsourcing by LCCs distorts the picture of true employee efficiency, because their low employee ratios are offset by the cost of paying for third-party ground handling and other outsourced functions.

Ratio analysis provides a different picture in the US, where carriers are very similar in total size. This is partly because US have not embraced the outsourcing options to the same degree that their European counterparts have.

US Airways has 28,000 staff and 279 aircraft, giving a ratio of 101:1. In comparison jetBlue has 3,800 staff, 46

aircraft, and a ratio of 80:1. Southwest has 35,000 staff, 381 aircraft, and a ratio of 91:1 while AirTran with 81 aircraft has a ratio of 69:1 (see table, page 12).

Using these ratios as a benchmark, and calculating the average salary based on financial reports, the amount of revenue that is spent on overstaffing can be estimated.

If a European airline with 75 aircraft had an average staff ratio 50% higher than an LCC it would have 1,700 staff more than required. With an average salary of \$30,000 this equates to \$51 million in additional labour cost per annum.

An airline in the US, using 150 aircraft and a 25% overstaffing rate would have about 3,000 additional staff; an average salary of \$35,000 equates to \$105 million per annum of additional cost. Lower staff ratios clearly provide LCCs with significant cost benefits when compared to their competitors.

Ticket distribution

Ticket distribution provides a major benefit to LCCs, which have a higher internet booking rate than major carriers, thereby producing great cost savings.

All LCCs push the internet booking option, with easyJet and Ryanair achieving 90% and 95% of all their bookings via the internet.

jetBlue receives 75% via the internet, 23% via telephone sales, and 2% via Sabre GDSs.

All LCCs have their reservations hosted, generally by Navitaire. They pay a reservation fee of 20-30 cents per passenger.

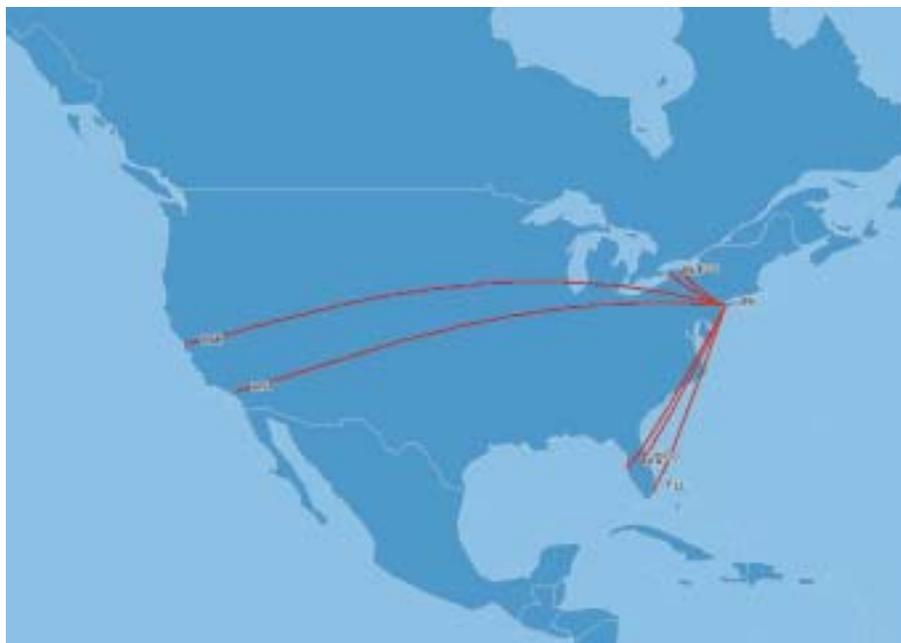
By comparison, GDS-hosted airlines pay about \$2.50-\$3.00 per booking line. A return fare booking for LHR-FCO-LHR would cost \$5.00-\$6.00. This has decreased, and may further decrease as airlines continue to protest.

For an airline like Ryanair, which has about 17 million passengers per year, a quick calculation shows that they would be paying about \$5.1 million per year in booking fees.

British Midland, assuming that 75% of its 7.5 million annual passengers use traditional booking methods, would be paying about \$14 million, and does not include agent commissions. Controlling the distribution channel is therefore another significant way of reducing cost.

"What we have done over the past two years is gain control of our distribution channels," says Tim Claydon, senior vice president of sales and development for jetBlue. "Instead of being in the position of many carriers, trying to claw back distribution control, we control it already. We are hosted in the Sabre system, but only 2% of our bookings come from that source. We are primarily there for corporate booking. The display is limited because we pay very little for the service. The internet is our biggest booking method, and we are always looking at ways of increasing its functionality. Other booking technologies, like WAP and text messaging, are not being investigated because they are not worth the investment. Internet terminals are everywhere now and people know how to use them. So many emergent technologies go nowhere, so why invest money on something that is unproven?"

14 | AIRCRAFT ANALYSIS



Networks and scheduling

European LCCs gain a significant advantage over their rivals by using non-congested airports where possible.

Ryanair primarily flies to secondary airports, while easyJet has a mixture of both. US carriers do not fly to as many secondary airports.

Secondary airports provide significant benefits to carriers: they have less congestion, they often offer lower landing costs and they can process and turn an aircraft around quickly.

These benefits allow an airline to increase its utilisation rates. Ryanair claims that reduced turn times allow it to operate two additional flights per aircraft each day, representing a significant increase in seat-mile productivity.

Analysis of several airlines (*see table, page 16*) in Europe and the US shows the

differences in aircraft utilisation rates. Comparing US and European LCCs with traditional carriers shows that LCCs achieve a higher average number of flights per aircraft.

To ensure that comparisons are similar, only aircraft in the 80-180 seat range were analysed; all others were removed. This reduces the fleet counts for companies like Lufthansa and Delta, but was required as fleet numbers for affiliate carriers could not be verified. Therefore, the comparisons are only between A320s, 737s and MD-80s.

The average stage length is very similar for all the carriers in Europe, ranging from 800-900 nm, while in the US it is longer (*see table, page 16*).

jetBlue's stage length is higher, since it uses A320s for long-haul operations, while the other carriers use 757s/767s that were excluded from this analysis.

European LCCs are achieving between 6-8 flights per day from each aircraft, while network carriers are achieving four. This is partly due to the congestion problems at major airports.

Reviewing the data shows that Ryanair has half the number of departures compared to BA, but only 25% of the number of aircraft. In the US the aircraft/departure ratio is much closer, with the exception of Southwest. Parity can be attributed to the longer-stage lengths flown and all airlines flying to similar airports, with congestion less of an issue the differential is not as significant.

Airport congestion limits aircraft utilisation and is a primary reason why BA and BMI are low compared to their competitors. Operating from Heathrow limits their performance. Operating from a secondary airport with low congestion clearly benefits an LCC and can be illustrated by using the London-Rome route as an example.

Alitalia and BA operate from both Heathrow and Gatwick to Fiumicino-Leonardo Da Vinci airport, 23 km from Rome's city centre. Ryanair and easyJet fly from Stansted to Ciampino, 9 km from Rome's city centre. The flight times for all three options (LHR-FCO, LGW-FCO, STN-CIA) are similar, being 1:40 hours, 1:43 hours and 1:45 hours respectively. Block times are significantly different, however.

LHR and LGW average a taxi time of 15 minutes, while FCO averages 10 minutes. In contrast, STN has a taxi time of 8 minutes, and CIA a taxi time of 5 minutes. This alters the block time of each sector considerably. The LHR-FCO sector becomes 2:05 hours, LGW 2:08 hours and STN 1:58 hours.

STN-CIA is the longest route at 1,459km compared to 1,441km for LHR-FCO and 1,404km for LGW-FCO. ATC delays and the time spent holding for a take-off or landing slot can also add about 10-15 minutes to the schedule.

Consequently, BA and Alitalia publish flight times of 2:25 hours from LHR and 2:40 hours from LGW. Ryanair publishes 2:20 hours from STN, despite its route being the longest sector.

Another factor benefiting LCCs is their turn time. Southwest Airlines in the US turns its 737s in 25 minutes, while the industry average is 35 minutes for the US and 45 minutes for Europe. All LCCs try to turn their aircraft as quickly as possible, and look for ways to speed up the process. "We look at the entire turning profile and seek efficiencies wherever possible," says Claydon. "Rear-door deplaning is one area where we really save time. Getting passengers on and off the aircraft through two doors speeds up the whole process, and reduces the time it takes to process our

passengers. We try to deplane from both front and rear as often as possible. In some airports, like New York's JFK, this is not possible, but we still manage to turn the aircraft quickly."

The cumulative benefit of less congestion, lower taxi-time and shorter turns enables these airlines to increase their utilisation levels, and so the number of available seat-miles (ASMs) generated.

By saving 20-30 minutes for each sector flown, an LCC is able to gain greater aircraft utilisation during each day. If a carrier started operations at 7:00am and concluded at 21:30pm, it could operate six 120-minute sectors with 30-minute turns. If the same carrier used 45-minute turns and took a 10-minute delay on each 120-minute sector it would only achieve five sectors.

With shorter turns, less congestion delays and shorter block times, LCCs are able to fly an average exceeding six sectors a day per aircraft (see table, page 16). This compares to a network carrier that can only achieve four per day. This means that an LCC can fly its schedule with less aircraft than a network carrier, or more importantly generate more ASMs per aircraft, providing it balances its schedule.

"Our aircraft fly a mixture of long-haul transcontinental and shorter sectors," says Claydon. "We match our network to achieve the balance between long- and short-haul operations to maximise aircraft utilisation. We can have an A320 fly two short sectors during the day, then fly New York-California, and return early morning to begin another day. Our average stage-length is 1,300nm, which is one of the longest

there is, so we need to balance the various stages to ensure that we use our assets well and do not have aircraft sitting around."

Connection traffic hampers an airline's scheduling period, especially if an airline operates a heavy bank structure. In this type of scenario, aircraft fly into a hub and fly out again after all the connecting passengers have arrived. While this maximises passenger connection potential, it hurts utilisation. American Airlines de-peaked two of its hubs, with departures in Chicago and Dallas being more evenly spread during the day.

Aircraft productivity

The combination of more sectors and also a higher number of seats in the same aircraft means LCCs are able to generate a higher number of ASMs per aircraft. An A320, for example, operating with a traditional European airline might be configured with 135 seats, while one operating with an LCC airline might have 160 seats. Both airlines might have an average stage length of 800nm, but the LCC would achieve 2,500 sectors annually and the traditional airline 1,800 sectors each year.

The LCC would generate 320 million ASMs each year, while the traditional airline would only generate 195 million ASMs per year. This difference in aircraft ASM productivity makes the largest contribution to the low unit cost performance of LCC airlines, since it dilutes many costs which are similar between the two types of airline, and also which are lower in the LCC's case.

Airport utilisation

Airport benefits that can be accrued by LCCs are considerable. This can range from revenue guarantees in the US, to financial incentives and lower landing/handling fees.

"The financial aspect is always top of the agenda, and the LCCs prefer to get an all inclusive deal if they can," says Cormac O'Connell, head of traffic development for Aer Rianta's Dublin Airport. "Prices are fixed in Dublin, but there is some latitude. Our airport charges are mandated to reduce by 7.8% per annum, making Dublin attractive to airlines. LCCs also prefer to operate to airports where they know they will not experience delays, because they want to preserve their efficiencies. Dublin achieves 10-11 turns per gate, which is very high. It is this kind of efficiency that the carriers look for, since they do not want to hang around airports, and want to utilise their asset."

LCCs are looking for quick turns. "Ryanair puts a lot of thought into its operations, and these are well planned," says O'Connell. "Ryanair turns in 25 minutes, while Aer Lingus is bound to 45 minutes by union contracts. Ryanair prefers to use dual stairs to speed the boarding process. Not having seats assigned also helps, because passengers board enmasse to secure a good seat. Ryanair always looks at how it can improve its turn times. For example, it elects not to use Dublin's quick exit taxiway because it requires heavy braking, and waiting for the brakes to cool down will delay it at the gate. It prefers a longer taxi."

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16 | AIRCRAFT ANALYSIS

COMPARATIVE ROUTE LENGTH, AIRCRAFT FLEET AND AIRCRAFT UTILISATION OF EUROPEAN AND US AIRLINES

Airline	Average stage length-nm	Departures per day	Fleet size	Sectors per day per aircraft
Ryanair	791	475	57	8.3
easyJet	873	458	73	6.3
BMI Baby	825	91	13	7.0
British Airways	959	845	205	4.1
Lufthansa	750	942	206	4.6
jetBlue	1,395	201	46	4.4
AirTran	1,088	458	81	5.7
Southwest	1,171	2,800	381	7.3
Continental	1,146	1,111	269	4.1
Delta Airlines	1,082	2,208	285	7.7
US Airways	1,027	1,526	229	6.7

COMPARATIVE CASM & RASM AIRLINE PERFORMANCE OF TRADITIONAL AND LOW-COST AIRLINES IN THE US-1ST QUARTER 2003

Airline	RASM	CASM	Profit margin
American Airlines	10.08	12.64	-20.3%
Alaska Airlines	9.40	10.67	-11.9%
Continental Airlines	9.93	11.82	-16.0%
Delta Airlines	11.95	13.39	-10.80%
Northwest Airlines	10.52	11.77	-10.60%
United Airlines	9.16	11.94	-23.3%
US Airways	13.80	15.72	-12.20%
jetBlue	7.35	6.19	18.70%
AirTran	8.94	8.58	4.20%
Southwest	7.77	7.50	3.60%

ATC delays at smaller airports are often low. Ryanair flies to six airports where its flight is the only aircraft movement during that time-period. "Speed is vital in the entire airport process, and we are moving away from hubbing to enable this," says Martin Saxton, director of commercial planning at Flybe. "We need to achieve quick rotations to drive up aircraft use, and hubbing does not assist in this process. We are no longer scheduling to build connections. They are now generated as a result of the operational depth we have. The intention is to use each aircraft to the maximum to sustain our utilisation rate. If we operated to normal protocols we would require more planes to fly the same schedule."

Fleet benefits

Single aircraft types were always interpreted as a cost-saving method. Fleet commonality gave airlines savings in

minimised pilot training, spares, rotables, maintenance and other areas. This is true for smaller fleets, but as LCCs get bigger they are diversifying their fleet without losing economies of scale.

AirTran is operating 717s and 737s, easyJet 737s and A319s, while jetBlue intends to have A320s and ERJs. Ryanair, Southwest and Virgin Blue are staying with the single aircraft-type model.

"LCCs are finding what other airlines have found; that having multiple aircraft sizes gives a greater level of flexibility to cater for fluctuating demand," says Steve Hendrikson, partner with Sabre Airline Solutions's Airline Consulting Services. "Beyond a certain fleet size, airlines find more fleet types are feasible when each sub-fleet exceeds a certain size. If too many sub-fleets are used costs will increase. The drawback with a single aircraft, however, is that your ability to match demand is purely a frequency equation. This is where several variants of one type help. Southwest uses several

different 737 variants, enabling them to alter capacity for demand while still benefiting from commonality benefits."

Maintenance

LCCs outsource their overhaul and maintenance functions, while traditional carriers generally keep at least some of their engineering and maintenance functions in-house.

Outsourcing maintenance enables LCCs to diversify their fleet, negotiating an all-inclusive maintenance contract that covers the entire fleet. Outsourced maintenance also means LCCs are not hamstrung by union agreements which prevent an improvement in unit cost performance. As an example, some traditional airlines are required to provide a minimum number of line mechanics to service each aircraft at transit stations and home bases. LCCs, in contrast, often have agreements with third-party providers that allow the airline to pay for maintenance on the aircraft only when it is actually required, thereby generating a saving for the LCC.

"The flexibility that LCCs can gain from maintenance facilities should still not push multiple-fleet types out of the equation," warns Hendrikson. "A multi-faceted fleet will still accrue cost, because there is a higher level of management required. So while we are seeing LCCs exploring more fleet types and outsourcing the maintenance, they will not move far from the single aircraft model."

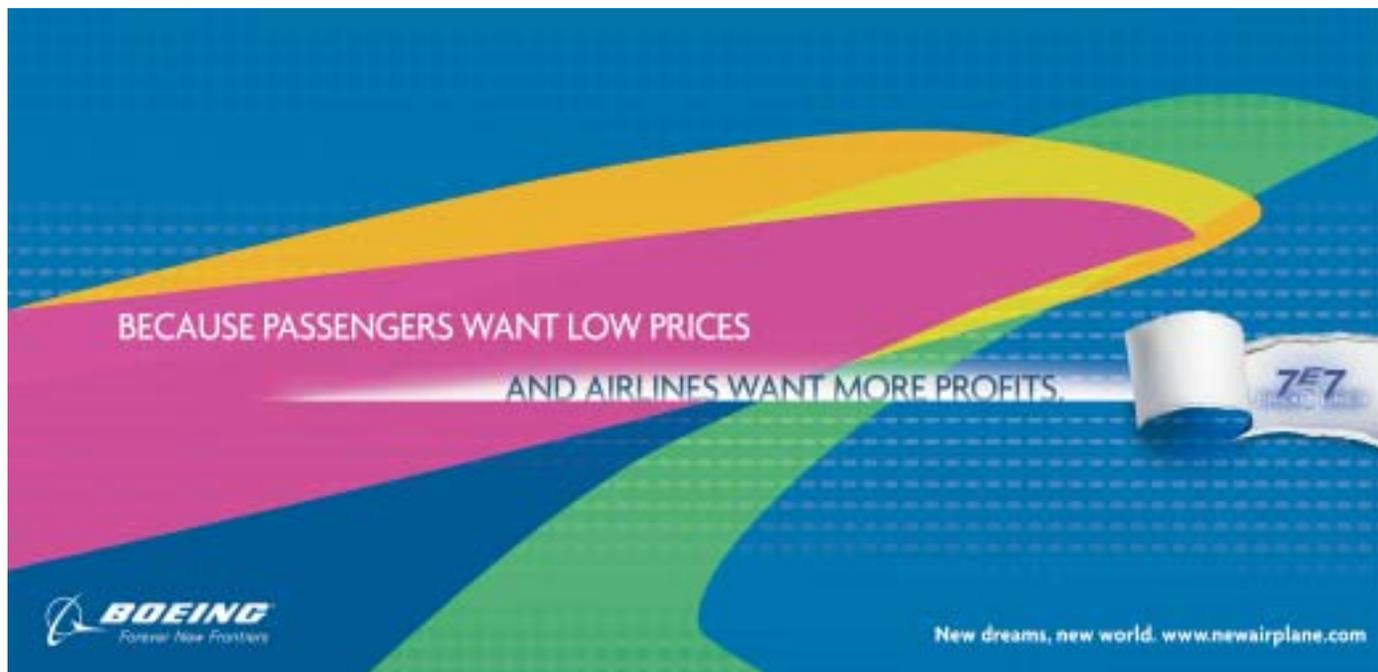
Outsourcing maintenance cannot reduce all elements of maintenance cost. Some elements of maintenance, such as rotatable provisioning, can be higher than if catered for in-house. Outsourcing does, however, do away with the initial investment of setting up an engineering department, and acquiring inventory, equipment, tooling and facilities.

Aircraft

Aircraft lease rates account for a lower percentage of total costs, and so are less of a cost driver than was once the case. With the industry downturn, lower interest rates and lessors buying aircraft in large volumes at high discounts, lease rates for 737s and A320s have reduced significantly.

Network carriers were once able to gain a financing benefit from leveraging their higher revenue streams and higher credit rating to secure cheaper capital. This advantage has now been removed, and LCCs are able to secure equally competitive lease rates. In some cases the lease rates secured by LCCs are lower, because the aircraft were not purchased during the economic peak.

A 737-300 can be leased for about



\$90,000-110,000 per month. This is partly due to 737-700s/-800s and A320s being leased in the region of \$300,000 per month, and partly due to the overall low demand. Additionally, finance companies are no longer demanding lease premiums from smaller operators, preferring instead to place their aircraft and utilise their asset.

Crew

Although pilot salaries in LCCs are comparable to other airlines, LCCs derive greater efficiencies from their flight crews. First, LCCs' aircraft are configured with a higher number of seats, so diluting cost per seat. Second, their pilots achieve a higher number of flight hours per year. Third, overall flight and cabin crew employment costs may be minimised by schedules being arranged so that a smaller portion of crews spend nights away from home, thereby incurring the costs of hotels, subsistence and transport.

Crew efficiencies are also gained through fleet commonality, especially in the case of small airlines. By having a dedicated 737 or A320 fleet the airline can achieve higher rates of productivity from their pilots, by reducing time used for training.

Quicker turns between departures also increase crew productivity. In most cases, a pilot's duty period is seven hours, depending on start time. A pilot cannot fly a leg if his or her duty time expires half-way through, and so the number of legs depends on the sectors' block time and turn time between sectors.

A pilot in a traditional airline will not be able to complete as many sectors in a

duty period as one from an LCC, so the LCC airline achieves higher pilot productivity.

Also, a smaller number of legs in a given period increases the number of times a pilot will finish duty away from home, and so require hotel accommodation. Ryanair and easyJet do not overnight their crews. This in turn allows them to use fewer crews per day, and to retain fewer crew per aircraft.

Efficient pilot use by LCCs is supported by examining the crewing levels at several airlines. easyJet has 450 pilots for its 73 aircraft; equating to 6.1 pilots per aircraft. Ryanair has 8.0 per aircraft, and BA has 9.0 pilots per aircraft. While LCCs have lower pilot numbers per aircraft, they also have higher rates of aircraft utilisation.

Overall costs

The overall cost benefits that LCCs have over their rivals can be illustrated by comparing jetblue, AirTran and Southwest to their network competitors (see table, page 16).

Southwest achieves a unit cost per ASM (CASM) of 7.5 cents. This compares to traditional carriers which have a CASM of 10-12 cents (see data page 16). AirTran has a slightly higher CASM of 8.5 cents, while jetBlue is lower at 6.1 cents. The difference between the CASM and each airline's revenue per ASM (RASM) indicates the profitability margin. The margin for United is -23%, Southwest has +3.6% while jetblue has +18%. These data are for the first quarter of 2003, before the full benefits of restructuring by the majors had been realised.

Summary

LCCs do have a cost advantage over their rivals. They require less staff in non-frontline areas, since the processes are often outsourced or do not exist, but also because the airline is operated on a simpler business model. Few traditional carriers are willing or able to take their staff levels down to the extremes that some of the LCCs have. Other advantages can be replicated, such as reduced distribution costs, which can generate considerable savings for an airline. Care must still be taken to ensure that if the customer is being attracted to online sales by cheap prices, that these prices are not lower than what was gained through traditional distribution methods, otherwise carriers risk revenue loss exceeding the cost component they were trying to save.

Another major advantage of LCCs is their higher aircraft utilisation rates, assisted by their fast turn-times and operations to secondary airports where possible. Less congested airports, fewer ATC delays, lower taxi times, and fast passenger processing all contribute to allowing the aircraft to be turned quickly. This increases utilisation and enables LCCs to use fewer aircraft to meet their schedule demands. Due to their reliance on hubs, which are generally congested, traditional carriers will not be able to match this. They will always require more pilots and more planes to offer the same schedule level as a LCC.

The advantages of more seats per aircraft, higher aircraft utilisation, lower staffing ratios and lower distribution costs all multiply to unit cost. **AC**