

Long-term predictions are that the Asia Pacific will continue to experience the highest rates of traffic growth. The ultimate effect is a more than doubling of the region's jetliner fleet, generating a market for 4,500 new aircraft in the next 20 years.

Asia Pacific fleet requirements

The Asia Pacific has a broad geographical spread and covers many markets. This analysis examines the aircraft requirements for the Chinese, Southeast Asian, Northeast Asian, and Australasian regions. As these markets grow, additional aircraft will be required.

The Asia Pacific is a mix of new, developing and mature routes. This diversity means demand for numbers and size of aircraft will be variable. Airlines with developing routes will respond to growing demand by raising frequencies. These will require smaller aircraft. Airlines increase aircraft once frequencies rise to a satisfactory level. Aircraft size will be increased on established city-pairs, because of the lack of secondary cities.

Traffic growth

Traffic growth rates in the Asia Pacific are high. Comparing airline international revenue passenger kilometres (RPKs) from 2001 with 2003 shows a high growth rate with few exceptions, (*see table, page 19*). RPK growth rate for the major airlines was 10%. Available seat-kilometres (ASKs) grew by 9%. Qantas still suffers, since it pulled international services to satisfy domestic demand, which explains its low ASK growth.

Japan Airlines (JAL) and All Nippon Airways (ANA) suffered drops in international traffic, due partly to Japan's economic decline and the effects of 11th September.

Boeing's forecast regions were merged to enable direct comparisons with Airbus's forecast, which is less detailed. This merging may make some data incorrect.

Boeing's data (*see table, page 20*) suggests annual growth between Asia and Europe of 5.2%, and between Asia and North America of 5.7%.

The Chinese market has high growth, with domestic annual growth forecast at 9%, traffic to Europe at 5.4%, and to North America at 6.1%.

This would result in an average growth rate for the entire Asia Pacific region of 5.1% (*see table, page 20*).

Airbus forecasts annual Asia to Europe growth at 6.8%, Asia to North America at 5.3%, and a regional growth rate at 5.1%.

Airbus, like Boeing, believes the Chinese market has high growth potential, and forecasts domestic growth at 8%, China to Europe at 6.6%, and China to North America at 7.2%.

Airbus's overall average annual growth rate for the entire Asia Pacific market is calculated at 6.5% (*see table, page 20*).

When current load factors of the major Asia Pacific airlines are examined (*see table, page 19*), it is apparent only a small amount of traffic growth could be accommodated with existing capacity.

Boeing predicts the market will mostly demand narrowbodies and widebodies in the 250-350 seat size category, as route fragmentation and higher frequency accommodate market needs.

Airbus predicts a demand for larger aircraft, and more hub-to-hub flying. A combination of both developments are likely, given the diversity of route and traffic development over the region.

Cathay Pacific believes traffic will remain buoyant in Asia for some time, and has placed further orders for A340-600s and 777s. Cathay's spokesperson Patrick Garrett says: "We are confident that the Asia Pacific will be one of the world's fastest growing regions, both intra-Asia and to the US and Europe.

"Our long-term plans are to build additional frequencies on our regional and long-haul network."

Qatar Airways, a sixth freedom carrier to Asia, also believes more aircraft are required. "We are confident that Asia will continue to grow," says Akbar Al Baker, chief executive officer at Qatar Airways. "This ties in well with our own expansion plans over the next 8-10 years, and Asia is a vital part of our development strategy. Kuala Lumpur is being developed as our Asian hub. We serve Manila and Jakarta, and will shortly launch China services. These will all be served via Kuala Lumpur with fifth freedom rights."

Qatar Airways is making fleet plans that reflect its prediction of a buoyant Asian market. "Fleet demands across the whole network require us to increase both frequency and capacity, and Asia is no exception," explains Al Baker. "We are looking to increase our fleet to meet the demand we have identified. We are evaluating Boeing and Airbus proposals for long-range, high-capacity aircraft. Our business plan requires aircraft to give us flexibility of size and range."

Network development

Due to the dynamics of the region and predicted growth rates, the Asia Pacific region is expected to require about 3,000 new aircraft. Their size will depend on the network intentions of individual carriers.

ANA reorganised its European operation in 2002 to allow for greater connectivity. "Last year we revised the entire network structure and upgraded all our European flights to a daily frequency," says David Surley, European marketing at ANA. "We now serve Paris non-stop; previously this was done once-weekly via Vienna. We see no need to increase our frequency to Europe. Any further increases could be via our STAR Alliance partners, utilising their capacity.

The network reorganisation gave us improved domestic connection options, and we now offer seven same day international connections via Narita, when previously there were none. The second runway at Narita was beneficial to our network options, since it caters for aircraft up to the size of the 767. The change in the European services has connected them with multiple domestic services as well.”

While ANA is satisfied with its European operation, it has increased flights within the Asia Pacific region. “We doubled our frequency between Narita and Shanghai. Most frequencies use 777s. We have done the same thing with our Kansai-Beijing services as well,” explains Surley. “This is in response to demand coming through from China. We have rationalised parts of our US service to dedicate more capacity to both China and other regions within the Asia Pacific.” Other carriers are also focusing on the Chinese market.

The volume of airlines operating to China suggests the market will continue to fragment, and use of high capacity aircraft operating into China will be limited. “The Chinese market is expected to follow a normal evolutionary process, and more city-pairs will develop,” explains Tim Meskill manager of market analysis at Boeing. “Hong Kong will have less importance as a gateway into China than it had. This will go hand-in-hand with market liberalisation. As China becomes more available to the west, the demand will be for more services beyond the traditional gateways of Hong Kong, Beijing and Shanghai. As this occurs, airlines will scale down to smaller aircraft where possible.”

Demand in China will also be influenced by airline mergers that are taking place, and the networks these combined carriers have. China Southern is seeking to enhance its network potential with its new partners, and its network plans suggest it will seek medium capacity aircraft to develop network feed.

“China Southern is undertaking a merger process with China Northern Airlines and China Xinjiang Airlines,” says Jeff Ruffolo, senior adviser for China Southern Airlines. “At the conclusion of this merger, China Southern Airlines’s fleet will total 187 aircraft and network destinations will exceed 600. China Southern Airlines will also become the Asia Pacific’s second largest airline group behind Japan Airlines. China Southern Airlines is also partnering with other airlines, primarily on a codesharing basis. These include Delta Airlines, KLM, Garuda Indonesia, JAL, Shandong Airlines and Vietnam Airlines. The opening of Baiyun International Airport in 2003 will further assist our network

ASIA PACIFIC REGIONAL FORECAST TRAFFIC GROWTH RATES

Airline	Feb '01 RPKs	Feb '03 RPKs	RPK Growth %	Feb '03 load factor %
Air China	685,796	1,135,156	65.5	65.7
ANZ	1,568,016	1,939,000	23.7	84.7
ANA	1,613,443	1,368,658	-15.2	70.8
Asiana	959,892	998,288	4.0	68.8
Cathay Pacific	3,381,928	3,912,940	15.7	74.2
China Airlines	1,938,490	2,001,869	3.3	71.5
China Eastern	894,367	594,550	-33.5	62.4
China Northern	475,427	484,936	2.0	60.3
China Southern	300,000	514,340	71.4	62.8
Dragonair	241,005	344,179	42.8	59.4
EVA AIR	1,371,219	1,487,477	8.5	73.0
Garuda	1,016,127	1,056,772	4.0	63.8
JAL	5,473,517	4,815,072	-12.0	65.9
Korean Air	2,564,610	3,556,979	38.7	71.2
Malaysian	2,559,823	2,991,018	16.8	71.1
Philippine Airlines	773,032	1,128,989	46.0	78.0
Qantas	4,043,483	4,390,176	8.6	80.3
Royal Brunei	257,844	285,297	10.6	63.7
Singapore Airlines	5,048,800	5,578,200	10.5	72.0
Thai Airways	3,350,156	3,668,576	9.5	75.9
Vietnam Airlines	306,054	318,296	4.0	59.3
Total	38,823,030	42,570,768	9.7	71.8

reach. Baiyun International Airport will be the largest commercial airport in China and the new home for China Southern Airlines. This will enhance China Southern’s operations, and allow us to develop our network in conjunction with the 2008 Beijing Summer Olympic Games and high growth. Since entering the World Trade Organization, China’s economic ties continue to be closely linked with world markets, and these business opportunities contribute to China being a region of significant growth due to its robust economic base.”

Another region favouring frequency over size is Australasia, where most carriers are ordering medium-sized aircraft. Air Tahiti Nui now operates four A340s on routes to Los Angeles, Paris, and Japan, and is seeking to increase its permitted frequencies to France after the collapse of Air Lib.

Air New Zealand (ANZ) is pursuing higher frequencies on its routes to the US. ANZ, Qantas, and United serve the Auckland-Los Angeles route. ANZ had already announced a frequency increase for summer 2003 prior to United’s exit from the route. ANZ is evaluating the 777 and A340 as replacement options for its 747-400s, preferring frequency over size. This has already been demonstrated on the trans-Tasman market, where ANZ has progressively withdrawn its 747 and 767 services for 737s. These will later be replaced with A320s.

Qantas, ANZ’s regional competitor, is

a customer for the A380 and 747-400ER. Qantas intends to use these on long-haul services, to the US, Asia, and Europe. The 747-400ER will probably be used on services to the US, where it can operate year-round without any operating restrictions.

While Qantas sees a requirement for large aircraft, it is also adding frequency where possible. It has added frequency on its Japanese routes and selected services to the Pacific Islands, and has added frequency into south east Asia with its subsidiary Australian Airlines. “Qantas is experimenting with aircraft that have lower unit costs to make routes profitable,” says Meskill “Because it has a low cost model, it can fly on routes where yields are low. It is an example of how airline and aircraft strategy can be merged to provide an economic return based on low unit costs. Qantas needs high capacity on its routes to Asia and Europe, because it is serving major hubs that are congested. Sydney-London is the world’s largest market that does not have direct service, meaning a hub in Asia must be used.”

The majority of airlines will favour frequency over capacity, since this allows them to respond to market demands more quickly and reduces the threat of market fragmentation. These carriers will seek to maximise the potential connecting flows on every route on their network. This is limited if high capacity aircraft and low frequencies are used.

ASIA PACIFIC REGIONAL RPK GROWTH FORECASTS

Region	Airbus	Boeing	Average
China domestic	8.0	9.0	8.5
China-Europe	6.6	5.4	6.0
China-North America	7.2	6.1	6.7
China-Oceania	7.4	3.4	5.4
China-Asia	7.4	5.8	6.6
Intra Asia	5.1	6.0	5.6
Asia-Europe	6.8	5.2	6.0
Asia-North America	5.3	5.7	5.5
Oceania-North America	6.2	3.6	4.9
Oceania-Asia	6.4	3.4	4.9
Intra Oceania	5.4	2.5	3.9
Average total growth	6.5	5.1	5.8

Market development

Major markets within the Asia Pacific are dominated by flag carriers. This is partly driven by the lack of available secondary cities. This keeps carriers operating to major cities, and restricts route fragmentation, supporting Airbus's view of need for the A380.

Boeing believes fragmentation will occur at the destination point. More secondary cities in Europe, North America, and Oceania will be served from major Asian cities.

However the market develops, there will be continued pressure at major Asian airports. Cathay Pacific sees increased influence of hub cities, because of fewer opportunities for secondary Asian airports.

China has potential for more fragmentation. "The growth of traffic to China is driven by the development of its GDP, which is among the highest in the world," says Emre Serpen, Vice President of Sabre Consulting. "This reflects its successful merging of a centrally planned economy with external market forces. This makes China attractive to many carriers, resulting in traffic growth. The single biggest growth market to China is Russia, where 20% annual growth is occurring. The profitability of China's three major carriers, China Eastern, China Southern, and Air China, has been varied. China Eastern and China Southern have been quite profitable, and their business is efficient. They utilise their assets well, and are able to sustain high yields. Air China has to do a lot to catch up."

Market growth potential, combined with low secondary airport demand, will favour the established carriers. While new carriers may emerge, the majority of traffic will be captured by the existing airlines. Selected Asia Pacific carriers already operate high load factors. ANZ and Qantas have the highest (*see table, page 19*). While this data provides a

snapshot only, it indicates what little traffic growth airlines can absorb into their current network. Load factors higher than 70% indicate high levels of passenger spill.

Traffic data (*see table, page 19*) shows that ANZ and Qantas are unable to meet further demand without adding capacity. Many airlines in the Asia Pacific are close to reaching a critical load factor.

While passenger demand is high, carriers also need to consider the potential for freight. "Cargo plays a significant role in regional traffic, more so than in domestic traffic," says Meskill. "Carriers that seek to expand their cargo options should look at the belly capacity they can use. The 777 has significant cargo capacity, which ensures that airlines maximise revenue. Cargo demand will continue to be strong for Asian carriers." This view is supported by Cathay Pacific which evaluates aircraft purchases on the cargo capacity available. About a third of Cathay's business comes from cargo; either dedicated freighters or bellyhold. Airlines are experiencing increases both in Cargo traffic and RPKs.

The growth in RPKs over this two year period has been dramatic for some carriers, with Dragonair and China Southern increasing by 59% and 57% respectively.

Philippine Airlines (PAL) and Malaysian were both able to grow ASKs by nearly a quarter in a two year period. Malaysia's RPKs did not grow at a commensurate rate, however, resulting in its load factor slipping. PAL was able to grow ASKs by 22% and RPKs by 46%, partly because it reinstated services that were previously removed due to its economic problems in 1998. Airlines are already beginning to add capacity. These include ANZ, Qantas, Thai, Malaysian, JAL and ANA, which are either placing orders or are close to placing orders for additional aircraft.

Aircraft orders

Widebodies will be required in regions with high density routes, while narrowbodies will be required for others. Each area that contributes to the overall Asia Pacific region will be evaluated separately.

Australasia

Airbus predicts Australasian region carriers will need almost 400 aircraft over the next 20 years for traffic growth and replacement of ageing aircraft. A demand for 110 narrowbodies is forecast. Narrowbodies will serve domestic, trans-Tasman, and inter-island routes.

Australasian carriers will also need 231 widebodies, mainly for use on routes to the Pacific rim and beyond. This includes a need for 77 airliners in the larger than 400 seats category.

Boeing predicts the region will need more than 500 aircraft, 200 of which will be narrowbodies. This is due to the need to serve dense population bases in both Australia and New Zealand, and thin routes to the Pacific Islands. Widebody demand is forecasted at 184 aircraft, of which 43 are 747 size or larger.

Boeing predicts that aircraft numbers will grow from 324 to 695 in the Australasian region, an increase of 114%.

Increased deliveries are already occurring. ANZ has acquired 15 A320s. Qantas has 25 Airbus aircraft on order, a mix of A330s and A380s, and is the launch customer for the 747-400ER, of which it has ordered six. Other Pacific operators are growing their fleets. Airalin is operating two A330s, Air Tahiti Nui four A340s, and Air Pacific, has chosen A330s to replace its 767 fleet. Virgin Blue has ordered 20 737s, and Royal Tongan has leased a 757 from Royal Brunei Airlines.

With ANZ evaluating its long-haul fleet, and Qantas and its subsidiary Australian Airlines requiring additional capacity in the near-future, aircraft demand in the Pacific will remain high.

South east Asia

Boeing has forecast total aircraft deliveries for 1,100 aircraft in the next 20 years in south east Asia. The fleet will grow from 662 to 1,444 when retirements are netted out, an increase of 118%. The largest demand will be for widebody aircraft, with a requirement for over 660; of which 198 will be very large aircraft.

Widebodies dominate this region. Singapore Airlines has ordered A340-500s and Vietnam Airlines has ordered four 777s. Thai Airways was evaluating Boeing and Airbus in a drive to expand its route network to the USA, China,

China Southern's traffic has increased by 71% in the past two years; the highest growth rate of any airline in the Asia Pacific region. The airline will be merged with several smaller Chinese carriers, which will further boost its traffic volume and fleet. It will become the region's second largest carrier behind JAL as a result.

India and Europe. Thai is expected to order eight A340-600s in addition to its \$330 million purchase of seven 747-400s from United Airlines and two more from Boeing.

Malaysian Airlines is the most recent customer for the A380, and is evaluating the 777 and A340 to serve other long-haul destinations, primarily to the US. Other carriers considering fleet expansion, include Garuda Indonesia, which is seeking an additional 747-400 and three A330s.

North east Asia

The north east Asian market, comprising Japan, Taiwan and South Korea, is mature. Fragmentation will occur here first, as south east Asian carriers secure aircraft with range to overfly Japan. Airlines previously funnelled passengers through Japan, since it was a high yield market, and was also conveniently placed for flights to the US. This meant airlines all flew their largest aircraft through Japan to maximise potential loads; 26% of Northwest Airlines's seating capacity goes to the Far East.

While the potential splintering of routes means that fewer large aircraft will be needed, this is not reflected in the airlines' forecasts. "Overall aircraft demand will be influenced by growth of the Chinese market, which has the highest growth rates," says Serpen. "Also, deregulation will have an impact on growth rates. While restrictive bilaterals remain, higher capacity aircraft will be required. If the bilaterals are relaxed markets will splinter. For example, Narita is an important gateway from the US to Asia. Pressure will continue to mount for non-stop services. Origin and destination (O&D) passengers will splinter from this gateway, and will fly direct, reducing pressure on existing services and allowing frequency to increase."

Boeing has forecast demand for 1,412 aircraft, an increase of 170% from 616 to 1,664 in the next 20 years. Widebodies account for over 1,000 of these units, with demand for 240 large aircraft. Narrowbodies are not dominant in these markets, due to the high passenger volumes. ANA, JAL, EVA and Korean all operate high density 747s on domestic



flights. The Japanese feeder affiliates to JAL and ANA operate 737s and A320s. ANA has ordered 45 737s to replace A320s and older 737s, while JAL is evaluating replacement options.

Boeing and Airbus are seeking further widebody orders from both JAL and ANA, and both carriers have signalled a need for up to 40 aircraft. "The large widebody aircraft forecast for north east Asia is mostly driven by Japan. The Japanese market is driven by two primary factors, Narita congestion and high yields," says Meskill. "Narita can only handle 60% of the traffic that London Gatwick does. Getting slots to Narita is difficult, and the only option you have to meet growth is through size. Narita was also the gateway to Asia, with carriers operating fifth freedom rights. This does not mean high capacity aircraft are the only solution. A 777 size aircraft can allow operators to carry high yield passengers with lower trip costs. Aircraft like the 777 and A340 can be used to avoid flying high yield traffic via Narita. The 747 will stay where it is, because there is sufficient demand for it, while the rest of the growth will be controlled by the long-range aircraft and how much fragmentation they cause."

China

Boeing and Airbus both forecast annual growth rates of 8-9% (see table, page 20).

Boeing forecasts China's demand for new aircraft to be 1,912 over 20 years; growing from 636 to 2,320, a net increase of 260%.

The small Chinese fleet means there will be a small number of aircraft retirements over this period.

Narrowbodies account for the largest volume of predicted orders, totalling over 1,000. A market for another 600 widebodies is predicted, 96 of which are for very large aircraft. Taiwan based China Airlines has ordered 10 747-400s, and further orders are expected.

While short term orders may be influenced by the Chinese Government's initiative to combine airlines, orders in the long term will be influenced by economic growth. "China's airlines' annual growth rates will at least match, if not exceed, the country's economic growth levels," says Serpen. "This will create the opportunity of more direct flights to China, bypassing the traditional gateways. Sustaining yields may be difficult, and there has been work done to ensure that yields remain at attractive levels. China's potential is vast, which explains why carriers like Lufthansa and Singapore Airlines are interested in investing in Chinese airlines, and why the major global alliances wish to secure a Chinese partner."

Summary

The Asia Pacific region displays significant potential over the next 20 years for aircraft orders. The majority of these orders will be for narrowbody aircraft, with Boeing estimating demand for 1,967 units. A similar demand for 1,902 widebodies is predicted. Ultra-large aircraft (747 and A380) are estimated to account for 578 units.

With a forecast for 4,446 new aircraft over the next 20 years, and a retirement of about 1,700 of the 2,438 currently in service, means that about 5,100 aircraft will be operating with Asia Pacific carriers in 20 years' time. **AC**