

Although the Asia Pacific is characterised by high-density routes, the past decade has seen a large number of new low-density being opened in Malaysia, Japan, Vietnam, China & Australia. This has stimulated demand for large turboprops and RJs, and small jetliners in the 60-125 seat category.

The market for new 60-125 seat aircraft in the Asia Pacific

The Asia Pacific has historically been characterised by the operation of the largest aircraft types, mainly the 747, between major hubs and capital cities. The past 10-15 years have seen some changes in the capacity provided by airlines on incumbent routes to higher frequency services with smaller types, as well as the growth of more routes serving secondary cities. This has been followed by the introduction of new airlines. Combined with high rates of economic growth that are forecast, there is potential for more routes and new services to be opened.

This could include regional and low-density routes that would be best served by large turboprops such as the ATR72 and Q400; large regional jets (RJs) that include the Embraer E-Jets, CRJ family, the Sukhoi Superjet, the Mitsubishi MRJ family, and the Comac ARJ21; and small mainline jets that include the CSeries.

How much of an opportunity does development in the Asia Pacific provide for these aircraft in the 60-125-seat category? An analysis of the change in capacity provided and average aircraft size on routes in the region over the past eight years will give an indication.

Asia Pacific & China

For the purposes of this analysis the Asia Pacific region is considered as stretching from the Indian subcontinent in the west down to Australasia in the south east and up to Japan in the north east. Afghanistan, Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan have not been included.

By 2031 Embraer predicts that the

Asia Pacific and China will account for 34% of Revenue Passenger Kilometres (RPKs) of all global traffic, making the Asia Pacific the largest market in the world.

Manufacturers are thus confident that there is a market for new aircraft in the 60-125-seat segment in this region.

Excluding China, Bombardier estimates that the Asia Pacific region will account for 1,710 aircraft or 13% of global deliveries in 2012-2031. It estimates that 57% of these aircraft will be in the 100-149-seat segment.

Embraer forecasts a demand for 505 aircraft in the 61-120-seat jet category over the same period, with an additional requirement for 590 turboprops with 60 or more seats.

In the case of China, Bombardier forecasts a requirement for 800 aircraft with 60-99 seats, and another 1,400 aircraft with 100-149 seats up to 2031.

Over the same period Embraer forecasts a requirement for 455 jets with 61-90 seats, 550 jets with 91-120 seats and 50 turboprops with a capacity in excess of 60.

Intra-Asia-Pacific capacity

An analysis of data for annual scheduled seat capacity and number of services for the region for 2004 and 2012 gives an indication of airlines' capacity requirements. One factor is the average aircraft size utilised on each city-pair. Routes with an average seat capacity of 60-125 seats are clearly the biggest and most likely markets for the new aircraft under consideration.

Analysis shows that the largest

domestic markets in terms of total available seats in the whole route network in 2012 are the 11 countries of: China, Japan, India, Indonesia, Australia, Philippines, South Korea, Malaysia, Thailand, Vietnam and New Zealand. Each of these markets will see more than 10 million seats on domestic services, according to capacity data supplied by Innovata at the time of writing. It should be noted that for this analysis flights between China, Taiwan, Hong Kong and Macau have been grouped together as a single domestic market, regarded as Greater China.

Each domestic market has seen an increase in seat capacity since 2004, with the exception of South Korea, which experienced a 2% decline.

The developing nations of Vietnam, Indonesia and India have experienced the highest increases in capacity over this period.

The greater China region and the Philippines also saw capacity more than double.

Since 2004 Japan, Korea and Thailand have experienced a reduction in average aircraft size at a domestic level.

Current fleet

There are about 500 active passenger aircraft in the 60-125-seat category in the Asia Pacific and China.

About 65% of these aircraft have 60-90 seats. The number of 60-125-seat aircraft in the region has more than doubled since 2004.

Over this eight-year period the number of 60-90-seat aircraft has grown at a faster rate than those in the 91-125-

GROWTH OF ROUTES WITH AVERAGE AIRCRAFT SIZE OF 60-125 SEATS IN THE MAIN ASIA PACIFIC MARKETS 2004-2012

Country	2004 routes	2012 routes	% change	Main airlines on routes
Malaysia	7	32	357%	Air Asia, Berjaya Air, Firefly, Malaysia Airlines
Japan	36	70	94%	ANA, ANA Wings, J-Air, Japan Airlines
Vietnam	17	31	82%	Air Mekong, Vietnam Airlines
Philippines	17	31	82%	Airphil Express, Cebu Pacific
China	135	218	61%	Air China, China Eastern, China Southern, Tianjin Airlines
Australia	37	57	54%	Virgin Australia, Qantas, SkyWest Airlines
Intra-Asia-Pacific	67	99	48%	Silk Air, Garuda Indonesia, Firefly
India	79	92	16%	Air India, Jet Airways, Spice Jet
Indonesia	71	74	4%	Wings Abadi Airlines, Garuda Indonesia, Indonesia Air Asia
New Zealand	10	10	0%	Air New Zealand, Jetstar Airways
Thailand	18	14	-22%	Bangkok Airways, Thai Airways
South Korea	4	0	-100%	
Total	498	728	46%	

seat category; increasing in number by 122% compared to 108%.

In the smaller size bracket, the ATR72 remains the most popular with 170 in service, although the Q400 has become increasingly numerous.

From 2004 to 2012 older aircraft such as the E.28 and YS-11 have decreased in numbers, while new types such as the E-170 and E-175 have started to be introduced.

In 2004 the most numerous type in the Asia Pacific and China in terms of the 91-125-seat category was the BAE 146 family. By 2012 this had been superseded by the E-190. Despite the introduction of new types, older aircraft still make up a significant portion of this fleet.

Although the DC-9 has all but disappeared from the region there are still BAE 146 and 717 operators, while the number of Fokker 100s has actually grown.

Orders

The Asia Pacific and China account for 438 aircraft on the firm order backlog for the 60-125-seat aircraft category. This is 39% of the world backlog for this size segment. The total global firm order backlog does not, however, take into account the memorandum of understanding (MOU) signed by SkyWest Inc for 100 MRJ series aircraft.

The region also has options on another 125 units of this size. Of the aircraft on firm order backlog, the ARJ21

is the most in demand. All but two of the 192 orders are destined for the home market of China. AVIC International Holding Corporation have ordered 100 of the type, while 50 are destined for Henan Airlines.

ATR72s also represent a significant percentage of the order backlog in the region. Of the 126 on order 43 are bound for Wings Abadi Air in Indonesia.

There are also 45 SSJs on order, 30 of which will be supplied for Kartika Airlines in Indonesia. There are 28 E-jets on order with the E-190 proving the most popular with 20 on the backlog. In addition there are 23 CRJ family aircraft destined for the region, 18 of which are CRJ1000ERs that will be operated by Garuda Indonesia. The remainder are CRJ900LRs. There are no current orders for the CS100 destined for Asia Pacific and Chinese operators.

60-125-seat aircraft

The next few years will see more aircraft in the 60-125-seat jet category entering service. Existing products from Embraer, Bombardier and Sukhoi SuperJet are set to be joined by new products from Bombardier, along with entrants from Mitsubishi and Comac.

The 60-125-seat category consists of large turboprops and regional jets (RJs). Aircraft already active in this sector include the ATR72-500/600, Q400, the Embraer E-Jets and Bombardier CRJ900/1000 and Sukhoi SuperJet

SSJ100.

The ATR72 seats up to 74 passengers, while the Q400 can accommodate up to 80.

The Embraer E-Jet family consists of the E-170, E-175, E-190 and E-195. These have capacities of 78, 88, 114 and 124 seats. The Bombardier CRJ family in this size range consists of the CRJ700, CRJ900 and CRJ1000. These aircraft have maximum capacities of 78, 88 and 100 passengers.

The Sukhoi Superjet 100 (SSJ100) can accommodate 98 passengers in a single class configuration.

There are also several older types still in service in this size range. These include the BAe 146/Avro RJ family, the 717, A318, and the Fokker 70 and Fokker 100.

Future deliveries in this segment look likely to be dominated in the turboprop category by the ATR 72 and Q400. In the 60-125 seat RJ/small jetliner sector, the aforementioned E-Jets and CRJ family will be joined by Bombardier's CS100, Mitsubishi's MRJ70 and MRJ90, Sukhoi's SuperJet 100 and Comac's ARJ21.

The CS100 will have a maximum capacity of 125 seats compared to 78 and 92 for the MRJ70 and MRJ90. The ARJ21 will have a maximum of 90 seats.

The ATR72, Q400, E-Jets, CRJ series and SSJ100 have all seen active airline service.

Of the new types yet to be delivered, the MRJ series is earmarked for its first flight in 2013, followed by first customer delivery in 2015. The first C-Series aircraft will probably fly in 2013 while the ARJ21 is unlikely to be delivered to customers before 2014.

Market for 60-125 seat aircraft

An indication of the potential market for 60-125-seat aircraft can be gained by examining the increase in number of routes in the region that have an average aircraft size of 60-125 seats.

Most routes that have average aircraft sizes in this size category are domestic services. There are, however, also some international routes in the region that also use smaller aircraft, although the long length of most routes across the entire region prohibits their use in most cases.

There has, for example, been the opening and development of new small routes in countries such as Malaysia and Japan. There are also some markets where the development of low-density routes has been low or even non-existent. These include South Korea and Thailand.

Examination of domestic routes in the top 11 countries in the region and in the intra-Asia-Pacific market reveals that there were 498 routes in 2004 that had



an average aircraft size of 60-125 seats (see table, page 20). About 249 of these supported at least a daily departure. About 431 of these routes were domestic services.

By 2012 the number of city-pairs with an average aircraft size in the 60-125-seat category had grown by 46% to 728 (see table, page 20), with about 352 supporting daily flights. About 629 of these routes are domestic services.

The country with the fastest rate of increase in these routes served with 60-125-seat aircraft was Malaysia. The number of routes increased from just seven in 2004 to 32 in 2012. Other countries where the rate of increase in the number of small routes is high include Japan, Vietnam, The Philippines, China and Australia (see table, page 20).

Countries with a low rate of increase, or even zero growth, in the number of low-density routes include South Korea, Indonesia, India, Thailand and New Zealand. The number of new international routes operated with smaller aircraft also experienced an increase.

Malaysia

Malaysia has seen the highest rate of increase in the number of routes with an average aircraft size in the 60-125-seat category. In 2004 there were seven routes, and this had increased to 32 in 2012 (see table, page 20). About 23 of these 32 routes supported a daily frequency based on average flight numbers. Kuala Lumpur is the most significant hub in the 60-125-seat category, serving 11 destinations. Prominent carriers on these routes include AirAsia with A320s, Berjaya Air with ATR72s, Firefly with ATR72s and

Malaysia Airlines with 737s. The busiest 60-125-seat route is Kuala Lumpur-Penang.

Domestic operations in Malaysia are due to account for nearly 200,000 flights providing 25.4 million seats in 2012. The biggest hubs to process this capacity are Kuala Lumpur, followed by Kota Kinabalu and Kuching. The trend across the busiest city-pairs has been for increases in average aircraft size since 2004.

A320s and 737s are significant capacity providers within Malaysia, although ATR72s represent the third largest provider of capacity.

In 2004 there were no aircraft in the 60-125-seat fleet in Malaysia. Significant capacity was provided by aircraft at either end of this size range, such as Fokker 50s and 737s. In 2012 the 60-125-seat fleet consists of 24 ATR72s operated by MASwings, Firefly and Berjaya Air. There are also five ATR72s on order, split between operators Firefly and Berjaya Air.

Japan

Japan has had the second highest growth in numbers of low-density routes. The number of city-pairs with an average aircraft size of 60-125 seats almost doubled to 70 from 2004 to 2012 (see table, page 20).

Japan has the second largest domestic market in the Asia Pacific. This is well known for its extensive domestic network, and the large number of high-density routes which are operated with large widebodies. Tokyo Haneda-Sapporo is one of the world's busiest routes.

In 2004 there were 36 different routes with an average aircraft size in the 60-

The number of domestic Japanese routes using large turboprops and RJs has almost doubled over the past eight years. Operators on these new routes include IbeX Airlines, J-Air, Japan Airlines, All Nippon Airways and ANA Wings.

125-seat category. Of these, 21, or 58%, supported, on average at least a daily service.

By 2012 the number of routes with the same aircraft size had grown by 94% to 70 (see table, page 20), with 77% supporting at least a daily frequency. This is an increase of 20% from 2004.

The most significant hub in the 60-125-seat category in 2012 is Osaka Itami with 15 domestic destinations. Operators on these routes include IbeX Airlines with CRJs, J-Air and Japan Airlines with E-170s and CRJs and All Nippon Airways (ANA) and ANA Wings with a mixture of A320s, 737s, 767s and Q400s. The busiest 60-125 seat route is Osaka Itami-Sendai.

Japan has also seen one of the largest increases in 60-125-seat aircraft in the region since 2004, and now boasts the third largest fleet in this size bracket. A small composition of 14 aircraft, split between Q400s and YS-11s has grown to 50 units in 2012 (see table, page 23). These are split between E-170s, E-175s, CRJs and Q400s operated by operators that include J-Air, Fuji Dream Airlines, IbeX Airlines, Japan Air Commuter and ANA Wings. The Q400 is the most numerous type.

There are 18 60-125-seat aircraft on order backlog for operators including an E-170 for J-Air, two Q400s for ANA Wings and 15 MRJ90s for ANA.

Vietnam

Vietnam's low-density domestic routes with average aircraft sizes in the 60-125-seat category have almost doubled from 17 to 31 in the eight years to 2012 (see table, page 20). The percentage of routes with a minimum daily service increased slightly to 55%.

Ho Chi Minh City served the most routes in the 60-125-seat category with 10 domestic destinations. Operators flying these routes include Air Mekong with CRJ900s and Vietnam Airlines with A320s and ATR72s. The busiest 60-125-seat route is Ho Chi Minh City-Phu Quoc.

The A320 family, ATR72s and 777s supply the most domestic capacity in the country.

The 60-125-seat fleet in Vietnam grew from 10 to 20 aircraft from 2004 to 2012. All are in the 60-90-seat size bracket. The majority of these are

THE 60-125 SEAT AIRCRAFT FLEET IN THE MAIN ASIA PACIFIC MARKETS 2004 - 2012 AND CURRENT ORDERS

Country	2004 Fleet	2012 Fleet	Firm order backlog	Airlines with firm orders
Australia	33	115	10	Air North, SkyWest Airlines, Qantas
Greater China	36	97	223	Chengdu Airlines, China Express Airlines, China Southern, Hainan Airlines, Hebei Airlines, Henan Airlines
Japan	14	50	18	ANA, ANA Wings, J-Air
India	8	49	51	Jet Airways, Kingfisher, SpiceJet
Indonesia	33	41	103	Garuda Indonesia, Kartika Airlines, Sky Aviation, Wings Abadi Airlines
Malaysia	0	24	5	Berjaya Air, Firefly
Vietnam	10	20	0	
Philippines	21	19	0	
New Zealand	12	12	7	Air New Zealand
Thailand	20	10	0	
South Korea	4	0	0	
Total	191	437	417	

Aircraft types in service include: BAe 146, E170/175/190, 717, ATR72, Q400, F100, CRJ700/900, MA60

Aircraft types on order include: E170/190/195, ARJ21, ATR72, Q400, CRJ900/1000, MA60, MRJ90, SSJ100

ATR72s operated by Vietnam Airlines. A small number of CRJ900s have also entered the fleet, and are operated by Air Mekong. There are currently no 60-125-seat aircraft on order.

Philippines

There was about an 80% increase in low-density routes in the Philippines up to 2012, with the number of city-pairs increasing from 17 to 31 (see table, page 20). The percentage with a minimum daily service has increased from 29% to 65%.

Cebu serves the most routes that have an average aircraft size of 60-125 seats in 2012 with 15 destinations. Operators on these routes include Airphil Express with A320s and Q400s, and Cebu Pacific with A319s, A320s and ATR72s. The busiest 60-125-seat route is Cebu-Cagayan de Oro.

The domestic market in The Philippines is almost twice the size of Vietnam's domestic operation, with 28 million seats in 2012.

Domestic capacity in The Philippines is dominated by the A320 and A319. ATR72s and Q400s supply the most seats in the regional size bracket. The 60-125-seat fleet in the country declined by two units from 21 to 19 from 2004 to 2012. Additional frequencies explain how the 60-125 seat market has continued to grow in spite of this. On the Cebu Pacific-Cagayan de Oro sector, for example, one-way flight numbers increased from 432 in 2004 to 1,832 in 2012.

YS-11s have been replaced by ATR72s and Q400s with operators that include Cebu Pacific and Airphil Express.

The RJ fleet has been reduced to a single BAe 146 with the phasing-out of DC-9s since 2004. There are no aircraft in the 60-125-seat range on order.

Greater China

China clearly has by far the largest domestic market of all countries in the Asia Pacific. Domestic operations in greater China will account for more than 439 million seats and 2.8 million flights in 2012.

The majority of domestic routes are dominated by aircraft in the 737 and A320 families, and consequently average aircraft sizes on these routes reflect this.

China is also characterised by a large number of cities in the eastern regions of the country, and route lengths are mainly in the short-haul category. Despite these demographics and the high rate of economic and traffic growth, there has also been a large increase in the number of routes with average aircraft size between 60 and 125 seats. This is an increase from 135 in 2004 to 218 in 2012, a rise of 61% (see table, page 20).

Xi'an will serve 20 domestic destinations with an average aircraft size of 60-125 seats in 2012, the most of any origin point. Airlines serving some of these 20 routes include Air China with 737s, China Eastern with A319s and A320s, China Southern with E-190s and 737s, and Tianjin Airlines with E-190s. The busiest route with an average aircraft size of 60-125 seats in 2012 is Taipei-Kinmen.

The largest hubs by total domestic seat capacity are Beijing, Guangzhou and the two Shanghai airports. The trend

among the busiest city-pairs since 2004 has seen average aircraft size continue to rise in most cases.

In 2004 the fleet in greater China had just 36 aircraft with 60-125 seats. This consisted mainly of BAe 146 family and ATR72 aircraft.

By 2012 the combined fleet had increased to 97 aircraft (see table, this page), with mainland China in particular seeing a 237% increase in units.

The main type in the region is now the E-190, which is in service with Tianjin Airlines, China Southern, Hebei Airlines and Mandarin Airlines. There are also 223 60-125-seat aircraft on order in the Greater China region. These include 190 ARJ21s for operators including Chengdu Airlines, Henan Airlines and Hebei Airlines. The largest order for 100 ARJ21s was placed by AVIC International Holding Corporation.

There are 10 E-190s on order for operators including China Southern, Henan Airlines and Hebei Airlines. There are also 18 ATR72s on order for Uni Air and TransAsia Airways. Finally, there are five CRJ900s on order for China Express Airlines.

Australia

Australia is the fifth largest domestic market in the Asia Pacific. Domestic capacity is scheduled to be more than 75 million seats in 2012. The majority of this capacity passes through the large hubs of Sydney, Melbourne, Brisbane, Perth and Adelaide.

Australia also has a significant number of low-density routes, given the large number of small cities.

The number of domestic routes in the 60-125-seat category has increased from 37 in 2004 to 57 in 2012, a 54% increase. The percentage of these supporting a minimum of a daily service has declined, however, from 62% to 56%. Brisbane, Darwin, Perth and Sydney are the most significant starting points for routes with an average aircraft size of 60-125 seats. Of these routes, the busiest in terms of capacity is Sydney-Canberra. Current operations on this city-pair are provided by Virgin Australia, Qantas and Skywest Airlines using a mixture of 737s, E-170s, E-190s and turboprops, including Q400s and ATR72s.

The majority of seats and flight services in Australia are operated on 737-800s followed by A320s. Q400s and E-190s are the highest contributing regional aircraft on the list providing the fourth and fifth largest capacity contributions.

Australia has seen a considerable increase in its 60-125 seat fleet since 2004, and now has the largest in the region with 115 units (*see table, page 23*). This makes it one of the largest operators of 60-125-seat aircraft.

There were no 60-90-seat aircraft in the fleet in 2004, but this has now grown to 39 aircraft. Of these, 27 are Q400s operated by Qantas Link subsidiary

Sunstate Airlines. There are also seven ATR72s operated by Skywest Airlines and Virgin Australia and three E-170s in service with Air North.

Larger RJ numbers have more than doubled. Types such as the BAe146, 717 and Fokker 100 have been supplemented by E-190s. There is no sign, however, of the older types disappearing from the market. The Fokker 100 fleet has increased, while BAe146 and 717 numbers have remained fairly constant.

Operators include Cobham Aviation Services on behalf of Qantas Link, Virgin Australia, Skywest and Alliance Airlines. Owing to a lack of scheduled services, the BAe 146 fleet is presumably utilised on charter services.

There are 10 60-125-seat aircraft on order for Australian operators. These include eight ATR72s for Skywest Airlines, an E-170 for Air North and a Q400 for Qantas.

International routes

There are a significant number of other international Inter-Asia/Pacific routes outside the domestic markets already discussed. Only those shorter than 3,000nm in stage length are considered here. Anything of greater distance could not be operated by any of

the new 60-125-seat aircraft under consideration.

The total intra-Asia-Pacific route network matching this criterion will account for nearly 240 million seats in 2012.

As would be expected, the heaviest routes are operated from the largest hubs of Singapore, Bangkok, Seoul Incheon, Kuala Lumpur and Hong Kong. None of the 20 busiest routes has an average aircraft size of less than 178 seats.

In 2004 there were 67 routes with an average aircraft size of 60-125 seats. This figure had increased to 99 routes by 2012 (*see table, page 20*), with 22% of them supporting at least a daily frequency.

The hub with the most international routes with an average aircraft size of 60-125 seats is Singapore with 11 destinations across four countries. These include services to East Timor, Indonesia, Malaysia and Thailand. Operators on these services include Silk Air with A319s and A320s, Garuda Indonesia with 737s and FlyFirefly with ATR72s. The busiest international route in this size category, and shorter than 3,000nm in distance, is Medan, Indonesia to Penang, Malaysia. Operators on this city-pair include AirAsia and Indonesia AirAsia with A320s, and Firefly and Wings Abadi Airlines with ATR72s.



The aircraft in the 60-125-seat segment providing the most capacity on intra-Asia international routes is the ATR72. The turboprop is responsible for considerably more flights and seats than its nearest competitor in the segment, the E-190.

India

Other markets in the Asia Pacific have experienced a small increase in the number of routes with an average aircraft size of 60-125 seats. India is one of these, having seen an increase from 79 to 92 city-pairs. About half of these will operate at an average of at least a daily frequency.

While there has been a small increase in the number of routes with an aircraft size in the 60-125-seat category, these still support a substantial market.

Hyderabad serves the largest number of routes with an average aircraft size of 60-125 seats with 16 domestic destinations. These routes are operated by airlines including Air India with A319s and A320s, Jet Airways using ATR72s and 737s and SpiceJet with Q400s. The biggest of these routes by available capacity is Hyderabad to Bangalore.

Total domestic Indian capacity in

2012 is scheduled to be about 88.5 million seats, making it the third largest domestic market in the Asia Pacific.

The 737 and A320 families provide the top five capacity contributions by aircraft type in the domestic Indian market. The largest regional contributors were ATR72s and Q400s.

India has seen the largest percentage increase in its 60-125-seat aircraft fleet in the region since 2004. From eight ATR72s, the fleet has grown to 49 in 2012. The composition is based entirely on 60-90 seat aircraft, and includes ATR72s, Q400s and CRJ700s operated by Jet Airways, SpiceJet and Alliance Air, now part of Air India. The current order backlog for 60-125-seat aircraft stands at 51. This includes five E-170s for Star Aviation, five ATR72s for Jet Airways and three Q400s for SpiceJet. There are also a number of ATR72s on order for Kingfisher Airlines, although with that operator's current difficulties the status of this order is unclear.

Other markets

Of the 11 largest domestic markets in the Asia Pacific, four have had little or no increase in the number of routes operating with a small aircraft size that large turboprops and large RJs could

possibly exploit. These are Indonesia, South Korea, Thailand and New Zealand. Of these, only Indonesia has a large number of routes with an average aircraft size of 60-125 seats.

Indonesia is the Asia Pacific's fourth largest domestic market, and will supply 79 million seats in 2012. The largest hubs are Jakarta, Surabaya and Ujung Pandang. Jakarta features in each of the 10 busiest routes, none of which have an average capacity below 176 seats. All of the top 10 city-pairs have seen significant increases in average aircraft size since 2004.

Domestic routes with an average aircraft size in the 60-125-seat category have increased by just three to 74 since 2004. Those supporting at least a daily rotation have fallen from 53% to 45%.

Denpasar-Bali and Ujung Pandang are the hubs serving the most routes with an average aircraft size of 60-125 seats with each connected to 11 destinations. Operators flying these routes include Wings Abadi Airlines with ATR72s, Citilink Indonesia with A320s, Garuda Indonesia with 737s, Indonesia AirAsia with A320s and Merpati Nusantara Airlines with Fokker 100s and 737s. The busiest route with an average aircraft size of 60-125 seats is Denpasar Bali-Surabaya.



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Capacity contribution by aircraft type reveals the dominant influence of 737 and A320 family units on domestic Indonesian operations.

Fokker 100s and BAE 146s will provide the most capacity in the 60-125-seat category. Indonesia has seen a moderate increase in its 60-125-seat fleet from 33 to 41 units since 2004. ATR72s, BAE146s MA60s and Fokker 100s comprise the main types. Operators include Wings Abadi Airlines, Aviastar Mandiri and Merpati.

Despite having a small increase in the number of low-density routes, Indonesia has the second largest number of 60-125-seat aircraft on order in the Asia Pacific after China. There are 103 aircraft on order backlog for Indonesian operators. These include three ATR72-500s and 40 ATR72-600s for Wings Abadi Airlines and 18 CRJ1000s for Garuda Indonesia. There are also 42 SSJ100s on order, 12 for Sky Aviation and the remaining 30 for Kartika Airlines.

The total number of routes with average aircraft size in the 60-125-seat category in Thailand and New Zealand is 21, and there are now no low-density routes in South Korea.

The number of these routes in Thailand and New Zealand has changed little since 2004, so these countries have a small requirement for large regional and small jetliner types.

Challenges & opportunities

Some of the main challenges or limitations facing manufacturers in the 60-125-seat category in the Asia Pacific are the region's geographical disposition and its preference for larger aircraft types. Patrick Fennell, head of operations

control Malaysia for AirAsia, believes that the former issue is key. "Long route lengths in the region place operational restrictions on RJs, because they have to trade payload for fuel load when trying to extend their reach.

"With regard to AirAsia, some of our thinner routes that might be theoretically suitable for a RJ to operate from a capacity point of view have flight lengths that are probably a bit long for them to be used effectively," adds Fennell.

Fennell suggests that the RJs' ability to be a better fit on thinner demand routes may not be a significant advantage in the Asia Pacific. "Even on thinner routes," he points out, "larger carriers such as AirAsia, Lion Air, Cebu Pacific, Tiger Airways and Jetstar can achieve the load factors desired to profitably operate larger gauge aircraft such as the 737 and A320, and do not need to consider smaller types. Mixing the fleet adds complexity anyway, and that is typically avoided by LCCs."

Other carriers in the region which operate both small narrowbodies and large turboprops may not necessarily want to fill the size gap. "You need to take into consideration the complication and expense of introducing another type to the fleet," says Peter Wiesner, senior vice president of network management at Bangkok Airways.

Despite these issues, there are still opportunities for manufacturers to exploit in the region. Referring to the Asia Pacific, excluding China, Alex Glock, vice president of Asia Pacific at Embraer suggests: "We have yet to see the full potential of the regional market segment in the region. Infrastructure, liberalisation, emergence of secondary markets and economies, increase in

The number of domestic routes in China operating with an average aircraft size of 60-125 seats now exceeds 200. There are more than 200 aircraft on firm order in this size category for Chinese airlines.

competition and the development of regional networks are all yet to reach maturity."

"The potential for regional aviation development in the region is huge, and we are a few years away from reaching its highest growth cycle," adds Glock.

Bombardier is also confident that there is a market in the region for its new C-Series.

Referring to both the CS100 and the larger CS300, Andy Solem, vice president of sales China and North Asia at Bombardier Commercial Aircraft, says: "The C-Series airliner is the only aircraft optimised for the 100-149-seat market segment.

"In China, more than 60% of single-aisle aircraft flights leave the gate with 80-130 passengers. That is exactly where the C-Series family of aircraft, with 110 to 145 seats, fits in," adds Solem.

There is certainly a feeling among manufacturers that trends for further urbanisation and a growing middle class will lead to additional air transport demand in growing economies such as those in the Asia Pacific. Airport building programmes in India and China are also likely to open up more route opportunities.

Summary

There is clearly strong potential for 60-125-seat aircraft in the Asia Pacific. The number of low-density routes has increased by almost 50% in eight years, and the fleet of 60-125-seat aircraft has more than doubled in size. More than another 400 aircraft are now on firm order.

Second, some markets also demonstrate a capacity gap between small narrowbodies and large turboprops that the new generation of large RJs and small jetliners could fill.

A predicted increase in the middle-class population in the region and continued economic growth is likely to continue to stimulate the opening of more medium-density routes. Many will be well suited to the capabilities of these new jets. **AC**

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