

Seat capacity on services to, from and within Africa has increased significantly since 2005. Airline, route and aircraft trends in the region are examined here. RJs and turboprops are the fastest-growing types on intra-Africa services.

Development of the African market

The number of seats available on all flights to, from and within Africa has increased by nearly 90% since 2005, equal to annual compound growth of about 6.5%.

Capacity data are analysed here. Trends are identified in the type and size of aircraft deployed, and the largest and fastest growing markets and routes. The change and growth in capacity reflects a similar change in traffic volumes. The analysis of capacity shows which aircraft types may be most in demand in the African region in the coming years.

Method

Capacity data from 2005 and 2015 have been used in this analysis. These cover direct non-stop, flights only.

New routes are categorised as any airport pairs that were not operated in 2005, but are served by 10 or more annual two-way flights in 2015.

Extra-regional destinations are any outside the African continent.

Market background

Africa can generally be classified into two regions: North Africa and sub-Saharan Africa. The United Nations (UN) currently recognises seven states in North Africa: Algeria, Egypt, Libya, Morocco, Sudan, Tunisia and Western Sahara.

Sub-Saharan Africa is a far larger region, and includes all of those countries to the south of the Sahara Desert in east, west, central and southern Africa: Ethiopia, Kenya, Ghana, Nigeria, Zambia, Zimbabwe and South Africa.

In its current market outlook (CMO) for years 2015 to 2034, Boeing notes that Africa has the world's fastest urbanisation rate, an economy that has grown by over 4.5% annually over the past 10 years, and a gross domestic product (GDP) that is expected to grow by almost 5% annually over the next decade.

Boeing believes that these factors will spur Africa's demand for air travel.

There are, however, a number of challenges facing commercial aviation in Africa, including restrictive air traffic rights between African countries.

The Yamoussoukro Decision was adopted by a number of countries in 1999. According to the International Air Transport Association (IATA), it was designed to deregulate air services and open up regional African markets to new competition. IATA claims that the implementation of the Yamoussoukro Decision has been slow and that the potential benefits are yet to be realised.

A report commissioned by IATA found that liberalising 12 key African markets could provide an additional 155,000 jobs and \$1.3 billion in GDP.

The states of the African Union are committed to implementing the Yamoussoukro Decision by 2017.

Airlines

The African airline landscape is dominated by state-owned national carriers. This partly explains why, unlike in other global regions, few of Africa's largest airlines have recently merged or ceased trading. Some of the most notable casualties are the demise of Air Afrique in 2002 and Nigeria Airways in 2003.

In 2015 the 10 largest African airlines by operated capacity will be: Egyptair, Ethiopian Airlines, Royal Air Maroc (RAM), South African Airways (SAA), Comair, Air Algerie, Kenya Airways, Arik Air, Tunisair and Mango Airlines. Seven of these airlines are national carriers.

National carriers

Egyptair, Ethiopian, RAM, SAA, Air Algerie, Kenya Airways and Tunisair are the respective national carriers of Egypt, Ethiopia, Morocco, South Africa, Algeria, Kenya and Tunisia. They are all majority state-owned except Kenya Airways, which has public and private shareholders, including KLM.

Most of these airlines operate a mix

of short- and long-haul services to intra- and extra-regional destinations. This means their mainline fleets contain both narrowbody and widebody aircraft. Some of the fleets also contain regional jets (RJs) and turboprops. Tunisair currently only operates a fleet of narrowbodies.

Egyptair will provide the most operated capacity by an African carrier in 2015, followed by Ethiopian and RAM. The Egyptair and RAM capacity figures include services operated by regional subsidiaries Egyptair Express and RAM Express. Tunisair has a regional unit, Tunisair Express, although this is considered to be a separate operation.

Ethiopian increased its capacity at a faster rate than any of the other main African carriers from 2005 to 2015.

In 2005 SAA was the largest African carrier by operated capacity, but from 2005 to 2015 it reduced the number of seats it operates by 13%. Despite this, SAA remains the largest African airline when measured by marketed seats, of which more than 4.5 million are operated annually by regional airlines AirlinK and SA Express. AirlinK is privately owned while SA Express is state-owned, and neither is an SAA subsidiary. All of AirlinK and SA Express's capacity is operated on behalf of SAA.

Some large African airlines have low-cost carrier (LCC) subsidiaries. Mango Airlines and Jambojet are LCC units of SAA and Kenya Airways respectively.

Other carriers

Beyond these seven national carriers, the three other largest African operators are Comair, Arik Air and Mango Airlines.

Comair Group is a private South African company that operates scheduled flights from Southern Africa under two separate brands: the British Airways (BA) brand as part of a franchise agreement, and its own LCC brand kulula. Total capacity is split almost evenly between the two branded operations. Comair's fleet is based around the 737 family.

TWO-WAY CAPACITY ON SCHEDULED NON-STOP FLIGHTS

Market	2005			2015			Change 2005-2015		
	Seats	Flights	Av Seats	Seats	Flights	Av Seats	Seats	Flights	Av Seats
Intra-Africa	49,450,931	520,988	95	81,379,913	799,566	102	65%	53%	7
Africa-Extra-regional	49,980,269	252,536	198	106,098,583	528,204	201	112%	109%	3
Total	99,431,200	773,524	129	187,478,496	1,327,770	141	89%	72%	12

Source: Innovata

Arik Air is a private Nigerian airline that began services in 2006. It operates domestic, regional and long-haul services, and its fleet includes turboprops, RJs, narrowbodies and widebodies.

Mango Airlines is a state-owned LCC and a subsidiary of SAA. Most of its routes are domestic services within South Africa. It has a fleet of 737-800s.

African LCCs

The LCC model is not well-established in Africa, but there are signs that LCCs will take a larger share of the market in the future. Mango and kulula are the largest African LCCs by operated capacity. One of the latest African LCCs to enter the market is fastjet.

There are a number of regional factors that could explain why the LCC model has been slow to develop in Africa.

“Internet penetration and credit card payments for ticket sales remain relatively limited in Africa,” explains Joao Miguel Santos, Boeing Commercial Airplanes director of international sales for Africa. “These are important distribution channels for the LCC business model.”

“Africa is a harsh environment for aircraft,” continues Santos. “Sand, dust, and foreign object debris (FOD) at remote or poorly serviced airfields, can mean more frequent engine removals, resulting in higher maintenance costs.” This may not suit the LCC model which focuses on minimising all costs.

“In addition many markets within Africa still require dual-class cabins, with strong demand for business class,” adds Santos. The LCC model is based on a single, all-economy cabin configuration.

Political, economic and regulatory factors may also have prevented greater LCC expansion in Africa. “African markets are artificially affected by a mix of government influence, monopolies dampening demand, and poor reliability of incumbent airlines,” claims Richard Bodin, chief commercial officer at fastjet.

“Protectionism and bureaucracy, coupled with the challenge of negotiating through a highly regulated environment, create huge barriers to entry,” continues Bodin. “The economic landscape in Africa has also been challenging in recent decades. It is only now in relatively prosperous times, with a growing middle

class, that conditions are right for LCCs.”

fastjet began operations in November 2012, and aims to become the first pan-African LCC. To overcome regulatory restrictions, its network will be based on different operating airlines in each base country, flying under one brand.

It currently operates three A319s from its main base at Dar Es Salaam, (DAR) in Tanzania. Routes from DAR include domestic services and international links to South Africa, Uganda, Zambia and Zimbabwe.

fastjet now wants to expand beyond Tanzania. It believes its pan-African fleet could grow to 34 aircraft, carrying up to 10 million passengers per year by 2018.

Routes & capacity

In 2015 more than 187 million bi-directional seats will be available on all services to, from and within Africa (see table, this page). This is an increase of about 89% compared to 2005.

The average aircraft size on these services has risen by 12 seats since 2005.

More detailed trends can be identified through the separate analysis of intra- and extra-regional markets.

Intra-Africa

More than 81 million seats will be available on intra-Africa flights in 2015, an increase of 65% compared to 2005.

During the same period the average capacity on intra-Africa services increased from 95 to 102 seats.

The intra-Africa market is dominated by domestic services, which will account for nine of the 10 largest intra-Africa traffic flows in 2015 (see table, page 8). These nine domestic markets will account for nearly half of all the seats available on intra-Africa services.

South Africa is by far the largest domestic market, with more than 18 million seats available. The Nigerian domestic market has seen some of the strongest growth since 2005, with available seats increasing from 1.2 to 6.9 million. The domestic markets in Kenya, Tanzania and Ethiopia also witnessed strong growth over the 10 years to 2015.

Prominence of domestic services in the intra-Africa market could be the result of geographic and political factors.

Many African countries have large distances between population centres, which makes flying a popular means of transport. In addition, restrictive bilateral air service agreements remain in place, limiting potential intra-Africa capacity.

There has always been a distinct lack of trans-African routes and air services. To complete journeys from one African state to another has often required transit via a city outside Africa. There has been a 90% increase in capacity on trans-African routes over the past 10 years. Growth in domestic capacity has been low by comparison at 50%. Over the past 10 years 280 new intra-Africa routes have been launched: 153 domestic routes; and 127 inter-Africa routes.

The largest international intra-Africa market in 2015 is between South Africa and Zimbabwe, followed by South Africa to Namibia, and Kenya to Tanzania. Half of the 10 largest international intra-Africa markets serve South Africa.

The 10 largest intra-Africa routes in 2015 are all domestic services. The route with the most capacity is the domestic link between Johannesburg (JNB) and Cape Town (CPT) in South Africa.

Five of the 10 largest intra-Africa routes are domestic services within South Africa, followed by two domestic services within each of Nigeria and Egypt, and a single domestic service within Congo.

The largest international intra-Africa route in 2015 is the link between JNB and Windhoek (WDH) in Namibia.

The largest origin airport for intra-Africa capacity is JNB, with more than 10.6 million departing seats in 2015. The next largest origin points are CPT, Addis Ababa (ADD) in Ethiopia, Lagos (LOS) in Nigeria, and Nairobi (NBO) in Kenya.

ADD, LOS, Abuja (ABV) in Nigeria and Accra (ACC) in Ghana, have seen some of the strongest growth in departing intra-Africa capacity since 2005.

SAA and Ethiopian will provide the most intra-Africa capacity in 2015, with about 7.5 million seats each, followed by Comair (through its BA franchise and kulula operations), Kenya Airways, Egyptair and Arik Air.

Extra-regional

The growth in seat capacity between Africa and extra-regional destinations has

Top intra-Africa traffic flows by two-way capacity

Traffic flow	Market type	2005 Seats	2015 Seats	Growth
South Africa - South Africa	Domestic	14,519,565	18,273,442	26%
Nigeria - Nigeria	Domestic	1,248,088	6,888,633	452%
Egypt - Egypt	Domestic	2,752,372	2,996,570	9%
Algeria - Algeria	Domestic	2,027,190	2,462,929	21%
Kenya - Kenya	Domestic	1,155,649	1,993,645	73%
Tanzania - Tanzania	Domestic	994,956	1,725,928	73%
Ethiopia - Ethiopia	Domestic	463,951	1,687,194	264%
Morocco - Morocco	Domestic	1,751,444	1,390,467	-21%
Ghana - Ghana	Domestic	-	1,284,288	
South Africa - Zimbabwe	International	633,543	1,242,918	96%

Source: Innovata

outpaced that seen in the intra-Africa market from 2005 to 2015.

In 2005 the number of seats available on intra-Africa flights was broadly similar to those between Africa and extra-regional locations, (see table, page 7).

In 2015 there will be more than 106 million bi-directional seats available between Africa and extra-regional destinations. This is a growth in capacity of about 112%, and compares to a 65% growth rate in the intra-Africa market.

Average seat capacity between Africa and extra-regional locations increased by three seats to 201 from 2005 to 2015.

The four largest African origin markets for flights to extra-regional locations are all in North Africa. Egypt is the largest, with more than 13.6 million departing seats available in 2015, followed by Morocco, Tunisia and Algeria. These four states will account for 60% of departing capacity from Africa to extra-regional destinations in 2015.

South Africa will be the largest sub-Saharan origin market for extra-regional services, with about 4.3 million departing seats available.

More than half of the seats available to extra-regional destinations in 2015 will be operated on services to Europe, followed by the Middle East. Services to other regions will account for only 8% of the departing capacity available from Africa to extra-regional locations.

The largest extra-regional country markets from Africa in 2015 are France, the United Arab Emirates (UAE), Saudi Arabia and the United Kingdom (UK).

Most of the largest traffic flows link North African countries to destinations in Europe or the Middle East. Many of these markets have grown strongly since 2005. The largest traffic flow in 2015 is between Egypt and Saudi Arabia, where capacity has grown by over 400% since 2005, eclipsing the established markets between France and its former territories of Morocco, Algeria and Tunisia.

The largest traffic flows from sub-Saharan Africa to extra-regional destinations are between South Africa

and the UAE and the UK.

In 2015 Cairo (CAI) will provide the most departing capacity of any African airport on services to extra-regional destinations, followed by Casablanca (CMN), JNB, Algiers (ALG), and Tunis (TUN).

The largest extra-regional link in 2015 will be between CAI and Jeddah (JED) in Saudi Arabia. The next largest will be between JNB and Dubai (DXB) and JNB and London-Heathrow (LHR). The 10 largest routes will all serve a location in Europe or the Middle East.

Egyptair will provide the most capacity between Africa and extra-regional locations in 2015, followed by Emirates, RAM, Air France and Saudia. Five of the 10 largest capacity providers in this market will be African airlines.

Expansion by Emirates, Etihad Airways, Qatar Airways and Saudia is partly behind the growth in capacity between Africa and the Middle East.

Another notable development is the introduction of point-to-point services to Africa by European LCCs, such as Ryanair and easyJet. This has contributed to the growth in capacity between North Africa and Europe since 2005.

African airlines, including Egyptair and Ethiopian, have also increased capacity between their home continent and extra-regional destinations.

Fleet strategies

Airlines have increasingly used larger, more modern aircraft on services to, from and within Africa. From 2005 to 2015 the average aircraft size increased from 129 to 141 seats (see table, page 11).

An analysis by aircraft category provides a more detailed view of developing fleet deployment trends and potential requirements.

Turboprop

Turboprops will operate nearly 7% of all the capacity available on services to, from and within Africa in 2015.

More than 12.7 million seats will be available on turboprop services (see table, page 11), an increase of 66% since 2005.

Unsurprisingly 97% of this turboprop capacity will be operated on intra-Africa services. The distances involved with many extra-regional routes would be too long for an efficient turboprop service.

“Turboprop aircraft have always been an important part of African airlines’ fleets,” claims John Moore, head of global sales at ATR. “Demand has been increasing in recent years due to the development of new regional routes, growing passenger demand, and steady GDP growth. If there is a trend towards more open skies, the demand for short-haul aircraft to cover regional routes will increase. The number of ATR aircraft flying in Africa has increased by nearly 70% since 2005. There are now more than 100 ATR aircraft operating with 35 African airlines from 28 countries.”

“The flexible and robust operating performance of ATR aircraft makes them suitable for small airfields and unprepared runways,” continues Moore. “They also have low operating costs, using up to 50% less fuel than equivalent jets. Both factors have played a role in ATR’s success in Africa.”

“We estimate a demand for 200-250 50-90 seat turboprops in Africa in the next 20 years,” adds Moore. “This is 8-10% of the expected global demand for turboprops. Real opportunities exist, particularly in West Africa. There is also strong growth potential in eastern regions due to the creation of new routes. The market in northern and southern Africa is more mature and stable, with development and replacement opportunities.”

“Many regional African routes of less than 350 nautical miles (nm) are operated by poorly suited single-aisle jets, with low load factors and limited frequencies. Turboprops, such as the ATR72 can optimise operating costs,” he concludes.

Bombardier also believes that turboprops are well suited to the African market. “Turboprops are great aircraft for Africa, particularly in the west and south-east where there are a lot of 200-500nm routes,” says Ryan DeBrusk, vice president of sales for Europe, Middle East Africa, Russia & CIS at Bombardier Commercial Aircraft. “On these route lengths turboprops are more efficient than any jet alternative.”

“The Q400 has become the backbone of the turboprop fleet in Africa,” claims DeBrusk. “It allows African operators to create their own standard by having dual-class cabins on regional services.”

Intra-Africa turboprops

The number of intra-Africa flights operated by turboprops increased by



28% from 2005 to 2015. There will be about 12.4 million seats available on intra-Africa turboprop services in 2015. This is an increase of 67% compared to 2005 (see table, page 11).

This means turboprops will provide about 15% of intra-Africa capacity.

The largest provider of intra-Africa turboprop capacity in 2015 will be Ethiopian, followed by SA Express, Air Algerie, Precision Air and Arik Air.

The increase in intra-Africa turboprop capacity results from various factors that include: a shift to larger aircraft; new operators and routes; additional capacity on existing routes; and rationalising capacity by replacing or complementing other aircraft types with turboprops.

From 2005 to 2015, the average capacity on intra-Africa turboprop services increased from 38 to 50 seats.

Smaller, older types, such as the An-24, Jetstream 41, Fokker 50 and Shorts 360, have either completely disappeared or had their capacity reduced since 2005.

Capacity provided by ATR72s and Q400s increased during the same period, and they are the main providers of intra-Africa turboprop seats by type in 2015.

New operators that have introduced turboprop capacity since 2005 include Arik Air and AKSY. Arik Air's fleet includes four Q400s, which it operates on domestic services within Nigeria. AKSY's fleet includes three Q400s.

Other established operators have increased their turboprop capacity since 2005. This includes Ethiopian, Air Algerie, Precision Air and RAM.

Ethiopian increased its large turboprop fleet by nine aircraft, and replaced Fokker 50s with Q400s.

AirAlgerie increased its fleet of ATR72s from six to 13 aircraft, and has

begun introducing the latest -600 variant.

Precision Air increased its fleet of ATR aircraft and RAM Express has built up a fleet of ATR72-600s.

There were numerous examples of turboprops being used to operate new routes in the intra-Africa market. These are classified as routes that did not exist in 2005, but which are operated in 2015 with a minimum of 10 two-way flights.

Air Algerie is using ATR42s on the new domestic Algerian service between ALG and Laghout (LOO), while Ethiopian uses Q400s on the domestic route between ADD and Asosa (ASO).

Turboprops have replaced larger aircraft on intra-Africa airport pairs, perhaps because turboprops are a more efficient, lower cost alternative on certain short routes, or due to a need to rationalise frequency and capacity.

From 2005 to 2015 Air Algerie replaced capacity provided by 737s on the domestic link between ALG and Ghardaia (GHA) with increased ATR42 services. This resulted in more than 100 extra annual flights, but a slight reduction in the overall seats available.

Turboprops are also used to complement other aircraft types on some routes, allowing airlines to match frequencies and capacity to demand.

RAM operates a mix of RAM Express ATR72s, alongside mainline E-190s and 737s on its domestic service between Agadir (AGA) and CMN.

Extra-regional turboprops

Turboprops will provide very little capacity between Africa and extra-regional destinations in 2015.

About 372,000 seats will be available on turboprops in this market, an increase

There has been strong growth provided by large RJs in the African market over the past 10 years. They have been used to open new routes and adjust capacity on existing services.

of 44% since 2005 (see table, page 11).

The number of flights operated by turboprops has actually fallen in this market, but capacity has increased due to the use of larger aircraft.

RAM will provide the most turboprop capacity to extra-regional destinations in 2015. RAM Express operates ATR72s between CMN and a number of airports in Spain and Portugal.

Regional jets

RJs will operate just under 7% of all capacity available on services to, from and within Africa in 2015.

Nearly 12.9 million seats will be available on RJ services, a rise of 385% since 2005 (see table, page 11).

More than 90% of this RJ capacity will be operated on intra-Africa services.

"The RJ fleet in Africa has grown dramatically over the last 15 years," explains Mathieu Duquesnoy, vice president of commercial aviation, EMEA, at Embraer. "Embraer E-Jets accounted for more than 60% of the deliveries in this sector. They give airlines the flexibility to increase frequencies and open new thin markets with lower risk than using larger narrowbodies.

"Africa is one of the fastest growing air transport continents in the world," continues Duquesnoy. "The expansion of foreign airlines into Africa has never been so aggressive, and this has forced local airlines to become more efficient and focus on their strengths. It is evident that the intra-African markets will be key to these airlines remaining competitive.

"We forecast the need for 240 new deliveries in the 70-130-seat jet segment in Africa over the next 20 years," adds Duquesnoy. "In 2014 88% of intra-Africa flights departed with fewer than 100 passengers on board. This represents a great opportunity for more regional aircraft in the region. We expect most of the demand for regional aircraft to come from Kenya, Ethiopia, Morocco, South Africa, Egypt and Nigeria."

Superjet International agrees that there is strong potential for future RJ growth in Africa.

"The trend in Africa is to fly big jets, even on routes with lower load factors," claims Eduardo Munhos de Campos, senior commercial vice president for the Sukhoi Superjet 100 programme. "African airlines have the lowest average

TWO-WAY CAPACITY ON SCHEDULED NON-STOP FLIGHTS

Market & Aircraft type	2005			2015			Change 2005-2015		
	Seats	Flights	Av Seats	Seats	Flights	Av Seats	Seats	Flights	Av Seats
Intra-Africa									
Narrowbody	34,621,134	265,597	130	49,999,090	350,144	143	44%	32%	13
Turboprop	7,435,070	195,007	38	12,409,460	250,543	50	67%	28%	12
Regional Jet	2,562,103	42,014	61	11,768,113	172,671	68	359%	311%	7
Widebody	4,832,624	18,370	263	7,203,250	26,208	275	49%	43%	12
Total	49,450,931	520,988	95	81,379,913	799,566	102	65%	53%	7
Africa-Extra regional									
Narrowbody	20,348,390	136,334	149	57,910,288	354,292	163	185%	160%	14
Widebody	29,278,466	105,723	277	46,691,279	154,683	302	59%	46%	25
Regional Jet	94,365	1,349	70	1,124,608	13,332	84	1092%	888%	14
Turboprop	259,048	9,130	28	372,408	5,897	63	44%	-35%	35
Total	49,980,269	252,536	198	106,098,583	528,204	201	112%	109%	3
All flights to/from/within Africa									
Narrowbody	54,969,524	401,931	137	107,909,378	704,436	153	96%	75%	16
Widebody	34,111,090	124,093	275	53,894,529	180,891	298	58%	46%	23
Regional Jet	2,656,468	43,363	61	12,892,721	186,003	69	385%	329%	8
Turboprop	7,694,118	204,137	38	12,781,868	256,440	50	66%	26%	12
Total	99,431,200	773,524	129	187,478,496	1,327,770	141	89%	72%	12

Source: Innovata

load factor in the world. Right-sizing operations with 100-seat aircraft like the SSJ-100 would help to improve efficiency, reduce costs and provide passengers with better connections across the region.”

Intra-Africa RJs

The number of intra-Africa flights operated by RJs increased by 311% from 2005 to 2015. About 11.7 million seats will be operated by RJs on intra-Africa services in 2015. This is a rise of 359% compared to 2005 (see table, this page).

The largest operators of intra-Africa RJ capacity in 2015 will be Kenya Airways, followed by Airlink, Egyptair, South African Express and Arik Air.

A number of factors has contributed to the growth in intra-Africa RJ capacity since 2005. Established airlines have added RJs to their fleets, or introduced larger, modern RJs, while new airlines have entered the market. RJs have been used to open new routes and to alter frequencies and capacity on airport-pairs.

The average capacity on intra-Africa RJ services increased from 61 to 68 seats from 2005 to 2015.

During this period older, smaller types were replaced by larger, modern RJs. In 2005 Fokker F.28s provided the most RJ capacity by type, operated with 70 seats on average, followed by 50-seat CRJ100/200s, and ERJ family aircraft.

In 2015 the E-190 will provide the most seats in the RJ category, with an average 96-seat configuration, followed by the E-170. The two E-Jet variants will account for nearly half of all the available intra-Africa RJ capacity in 2015.

Airlines that have launched intra-Africa services since 2005 and now

operate RJs, include Arik Air and Africa World Airlines. Arik Air has four CRJ-900s and one CRJ1000 in its fleet. About two-thirds of its RJ capacity is deployed on domestic services within Nigeria.

Established carriers that have added RJs to their fleets since 2005 include Kenya Airways and Egyptair.

Kenya Airways has added 15 E-190s, with most of the E-Jet capacity deployed on domestic routes, or on services feeding regional African traffic into its NBO hub.

Egyptair has added RJ capacity via its Egyptair Express unit that operates a fleet of 12 E-170s serving domestic routes, and some extra-regional operations. Airlink and SA Express have both increased the number of RJs in their fleets since 2005.

RJs are being used on new routes, introduced since 2005. Examples include Kenya Airways E-190s operating between NBO and Gaborone (GBE) in Botswana, and Arik Air CRJ-900s flying between LOS and Luanda (LAD) in Angola. In some cases RJs are operated alongside other aircraft types on new routes.

They have also been used to adjust frequency and capacity on airport-pairs.

In some cases RJs have replaced other aircraft types. Kenya Airways has completely replaced 737s with E-190s between NBO and Bujumbura (BJM) in Burundi. It has increased frequencies and capacity on the route.

Airlines have also adjusted capacity by using RJs to complement other aircraft types on established routes. Egyptair operates 737s and A320 family narrowbodies alongside Egyptair Express E-170s on the domestic route between CAI and Hurghada (HRG).

There are examples of airlines introducing RJs alongside narrowbodies

on established routes, where narrowbody capacity and frequency is reduced.

Airlines can rationalise frequencies and capacity by introducing RJs in place of, or alongside, other aircraft types.

Extra-regional RJs

RJs will provide about 1.1 million seats on services between Africa and extra-regional locations in 2015. This is an increase of more than 1000% compared to 2005 (see table, this page).

The main reason for this is the introduction of extra-regional RJ services by RAM and Egyptair, and an increase in RJ capacity by Air Nostrum.

RAM operates E-190s between CMN and various European destinations including Munich (MUC) in Germany and Strasbourg (SXB) in France, while Egyptair Express operates E-170s from CAI to Europe and the Middle East. Destinations include Larnaca (LCA) in Cyprus and Bahrain (BAH).

Narrowbody

Narrowbody aircraft will operate close to 108 million seats, on services to, from and within Africa in 2015. This is an increase in capacity of 96% since 2005 (see table, this page).

Narrowbodies will provide more seats than any other aircraft category, accounting for about 57% of all capacity to, from and within Africa in 2015.

Some of the factors behind this growth include: a shift towards larger, modern aircraft; the introduction of new airlines; and a growth in the narrowbody operations of existing airlines.

Narrowbodies have been used to



open new routes and to adjust capacity on existing services.

In its CMO, Boeing estimates a need for up to 830 single-aisle aircraft in the Africa market between 2015 and 2034.

Bombardier says there could be demand for the C Series, developed for the 100- to 150-seat market, in Africa.

“The big carriers in Africa such as Egyptair, Ethiopian, SAA and Kenya Airways have been undergoing significant fleet evolutions,” explains DeBrusk. “They are moving towards the most efficient aircraft with the latest technology. The C Series fits perfectly with these requirements.”

Intra-Africa narrowbodies

The number of intra-Africa flights operated by narrowbodies increased by 32% from 2005 to 2015. About 50 million seats will be operated by narrowbodies on intra-Africa services in 2015. This represents a growth of 44% compared to 2005 (*see table, page 11*).

The largest operator of intra-Africa narrowbody capacity in 2015 will be Comair, via its BA and kulula operations, followed by SAA, Mango Airlines, RAM, Arik Air, Ethiopian and Egyptair.

The average capacity on narrowbody aircraft increased from 130 to 143 seats from 2005 to 2015.

Capacity provided by older types, such as 727s, DC-9s, MD-80s and 737-200s declined significantly. In 2015 the larger 737-800 provides the most intra-Africa capacity in the narrowbody segment. More than 70% of intra-Africa narrowbody capacity will be operated by 737 variants in 2015.

Airlines that have begun operations

since 2005 and are operating intra-Africa narrowbody services in 2015 include Mango Airlines and Arik Air. Both airlines operate 737NG family aircraft.

Established operators that have increased their intra-Africa narrowbody capacity since 2005 include Comair, RAM and Ethiopian. RAM and Ethiopian have withdrawn older 737 variants and added 737-700s and -800s to their fleets since 2005.

Narrowbodies have been used to open new intra-Africa routes, including RAM's service linking CMN with ACC using 737-700s and -800s.

They have also been used to increase frequency and capacity. Egyptair and Ethiopian Airlines added narrowbody frequencies and capacity between CAI and ADD from 2005 to 2015.

Extra-regional narrowbodies

Narrowbodies will operate more than half the available capacity between Africa and extra-regional destinations in 2015, accounting for nearly 58 million seats. This represents a 185% increase compared to 2005 (*see table, page 11*).

Narrowbody capacity grew strongly between Africa and extra-regional locations from 2005 to 2015.

RAM and Egyptair will provide the most narrowbody capacity between Africa and extra-regional locations in 2015. The next largest operators will be Ryanair, Tunisair and Air Algerie.

The number of flights operated by narrowbodies between Africa and extra-regional destinations increased by 160% from 2005 to 2015. The average capacity of narrowbody aircraft on these services increased from 149 to 163 seats during

The largest African airlines are majority state owned national carriers. Some of these operators have introduced the latest technologically advanced aircraft in recent years. Ethiopian, Kenya Airways and RAM all operate the 787.

this period, with the A320 and 737-800 by far the dominant aircraft in 2015.

Introduction of scheduled services to Africa by European-based LCCs and holiday airlines has contributed to the growth in narrowbody capacity in this market since 2005. Ryanair and easyJet have recently introduced flights to Africa.

African-based carriers including RAM, Egyptair, Tunisair, and Air Algerie have also added narrowbody capacity for extra-regional services.

Narrowbodies have been used to open new routes between Africa and extra-regional destinations. They have also been used to add capacity on established airport-pairs.

Some widebody capacity was replaced by narrowbodies from 2005 to 2015. Egyptair has replaced A300-600s with higher frequency 737-800s services between CAI and Amsterdam (AMS), and CAI and Barcelona (BCN).

Widebody

Widebodies will operate nearly 29% of all available capacity to, from and within Africa in 2015. Nearly 54 million seats will be available on widebody services. This is a 58% increase compared to 2005 (*see table, page 11*).

The growth in capacity can be partly attributed to using larger aircraft on these services, with an average increase from 275 to 298 seats between 2005 and 2015.

Boeing sees a requirement for up to 300 widebody deliveries in Africa from 2015 to 2034.

Boeing splits widebodies into three categories: small widebodies like the 787-8/-9; medium ones like the 787-10 or 777 family; and large widebodies, a category comprising only the 747-8 and A380.

Boeing sees demand for 40 new medium widebodies and 260 new small widebodies in the Africa market up until 2034, but sees no current demand for large widebodies in Africa.

There are 144 widebodies in service with African airlines, with the largest fleets at Ethiopian (30) and SAA (23).

There has been a recent shift towards more modern aircraft. In 2005 the most popular widebody types in service with African airlines were the 767 (31), A340 (26) and 747 (17) families.

In 2015 the most popular widebodies are the 777 (34) and A330 (30) families.

There are also 22 787s on the African register, operated by Ethiopian Airlines (13), Kenya Airways (7) and RAM (2). Only eight 747s remain in service.

Widebodies will provide more than 46.5 million seats between Africa and extra-regional destinations in 2015, a rise of 59% since 2005 (see table, page 11).

777s and A330s will provide the most capacity in this market although Air France, BA, Emirates and Lufthansa have introduced A380s on services to Africa.

Emirates will provide the most widebody capacity between Africa and extra-regional destinations, followed by Egyptair, Air France and Saudia.

The expansion of Middle East airlines into Africa has contributed to the increase in available widebody capacity to extra-regional destinations. Emirates' capacity has increased by 300% to more than 7.7 million seats in this market. It serves 17 African countries from its DXB hub using a mix of A330s, A340s, 777s and A380s.

African carriers, including Egyptair and Ethiopian, have also contributed to an increase in widebody capacity to extra-regional locations. Ethiopian has introduced a number of new extra-regional country markets to its route network since 2005. Its largest new country market is China. In 2015 Ethiopian serves three cities in China from ADD using 777s and 787s.

Widebodies will operate about 26,200 flights on intra-Africa services in 2015. These will provide 7.2 million seats. This is a capacity increase of 49% compared to 2005 (see table, page 11).

787-800s and A340-300s, 767s and 777s will provide the most intra-Africa widebody capacity, with most capacity provided by Ethiopian and SAA.

An increase in widebody capacity by Ethiopian is the single largest contributing factor to the growth in intra-Africa widebody capacity. The airline has used widebodies to add capacity between Ethiopia and existing markets such as Nigeria, and new markets including services between Ethiopia and Zimbabwe, Equatorial Guinea and Mali.

Ethiopian has introduced 787s on intra-Africa services. These aircraft account for nearly half of the airline's widebody capacity in this market.

Summary

The number of seats available on services to, from and within Africa has increased considerably since 2005.

Capacity growth between Africa and extra-regional locations outpaced the intra-Africa market. The largest extra-regional destination markets from Africa are Europe and the Middle East.

The intra-Africa market is dominated

by domestic services. Restrictive air service agreements have prevented more international intra-Africa expansion. Full implementation of the Yamoussoukro Decision would help to open new market opportunities and increase intra-Africa capacity. This in turn could lead to a growth in the LCC model in Africa.

There have been trends towards the use of larger, more modern aircraft on both intra- and extra-regional services.

Narrowbodies provide the most capacity on services to, from and within Africa, but RJs have seen the strongest growth since 2005.

The largest growth potential for services between Africa and extra-regional locations is likely to be for narrowbody aircraft. This market is also likely to see further potential for small and medium-widebody aircraft.

There will always be strong demand for narrowbodies for intra-Africa services, but trends over the past 10 years suggest that the largest growth potential in that market could be for large RJs such as the E-190. There is also likely to be additional demand for large turboprops, such as the Q400 and ATR72. 

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