



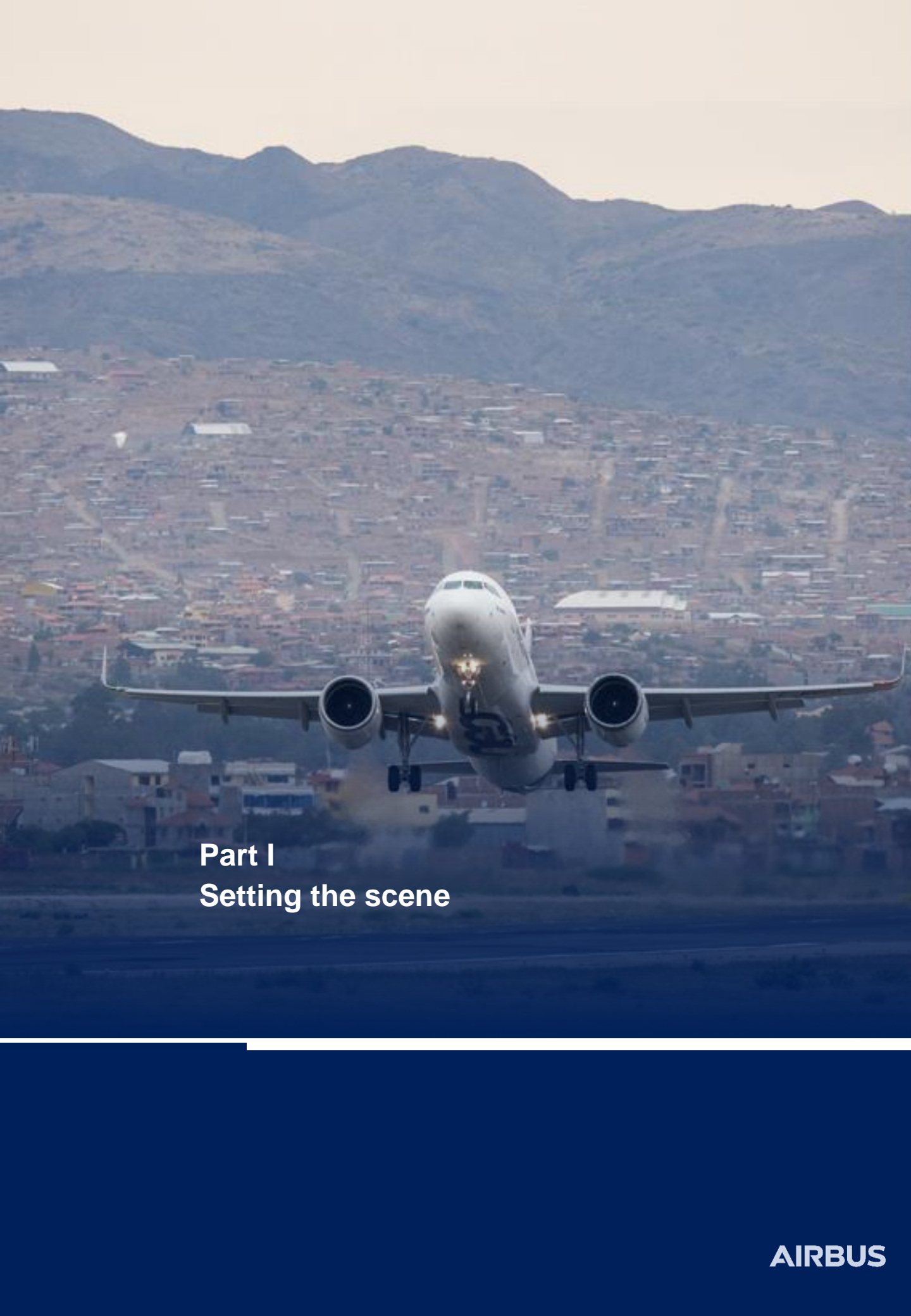
Exploring the horizons

A study of unserved air routes to, from and within Africa

June 2024

COMMERCIAL AIRCRAFT

AIRBUS



Part I
Setting the scene

Introduction

Many elements are crucial for the success and profitability of an airline. Some of these elements - if not the most strategic - revolve around the airline's network, route planning and schedule optimisation. These factors significantly influence the quality of service provided by the airline to travellers, its appeal to travellers, and consequently, the revenue the airline can generate. It ultimately shapes the competitive position of the airline in the industry.

Airline route and network planning stands as a cornerstone of an airline's strategic planning and future development potential. Screening the market for new routes therefore represents one of the most strategically important activities in the industry.

Airports – from their side – equally develop networks for strategic and operational reasons. Their objective is to enhance connectivity and to reinforce their business by attracting more passengers, more cargo and more airlines. By doing so, they amplify accessibility, unlock new revenue and stimulate economic growth of the cities and the region they serve.

Some important routes remain unserved today. Despite substantial traffic-levels observed between certain city-pairs, regularly scheduled non-stop flights remain absent in some identified cases.

Various reasons may explain the absence of non-stop flights between city pairs. Restrictive bilateral air service agreements, geopolitical dynamics, economic variables or simply the strategic preferences of airlines are notable examples. Some routes remain unserved due to the interplay of aircraft performance challenges alongside aircraft capacity and operating cost efficiency.

The above notions lead Airbus to consistently work together and connect with both the global airline community and other stakeholders of the air transport industry. Airbus equally conducts screening and analysis of unserved routes to pinpoint market opportunities, bolster dialogue with the airline community, and assess the feasibility and potential value of any Airbus product development initiative. Enhanced aircraft capabilities and operating efficiency facilitate network development and can pave the way for operational and economic feasibility of new routes. All elements together ultimately lead to improved connectivity, more choice and more convenience for travellers. This clarifies Airbus' interest in supporting and working together with AviaDev.

This report identifies and discusses several unserved routes that hold special significance for Africa, with a specific focus on the sub-Saharan region. Developed by Airbus in a collaborative effort with AviaDev, the report was unveiled during the AviaDev-conference in Windhoek in June 2024.

Summary

Africa's top tier unserved routes

Various categories of unserved routes can be identified. One prominent division is between routes that have never had a non-stop flight and those that were previously served by a non-stop flight, discontinued for various reasons, with the non-stop service yet to be reinstated. Both types were examined for Africa's sub-Saharan region prior to the compilation of this report.

Unserved routes were identified by first merging O&D traffic data with flight schedule data, and then filtering out city pairs with sufficient O&D traffic levels to sustain non-stop flights but currently lack such non-stop service. The analysis used traffic and schedule data spanning from the beginning of December 2022 to the end of November 2023.

The study reveals that some of the most appealing unserved routes are concentrated in a few African cities. Lagos, Cape Town, Nairobi, Dakar and Douala each have multiple routes ranking amongst Africa's top unserved routes today. Next to these, there are different examples of routes to and from other major cities that round the top tier of Africa's unserved routes.

The uppermost segment of Africa's presently unserved routes are long-haul intercontinental flights to North America, Europe and the Indian Subcontinent. Unserved city pairs within Africa rank lower on the list due to their currently lower traffic numbers. Nevertheless, this study still identified some promising prospects. Intercontinental flights and flights within Africa were handled as two distinct categories in this study and separate rankings of the most important unserved routes were created for each category. Part II of this report discusses 10 of the most important unserved routes to and from the sub-Saharan region of Africa, while part III addresses some appealing unserved routes within Africa's sub-Saharan region itself.

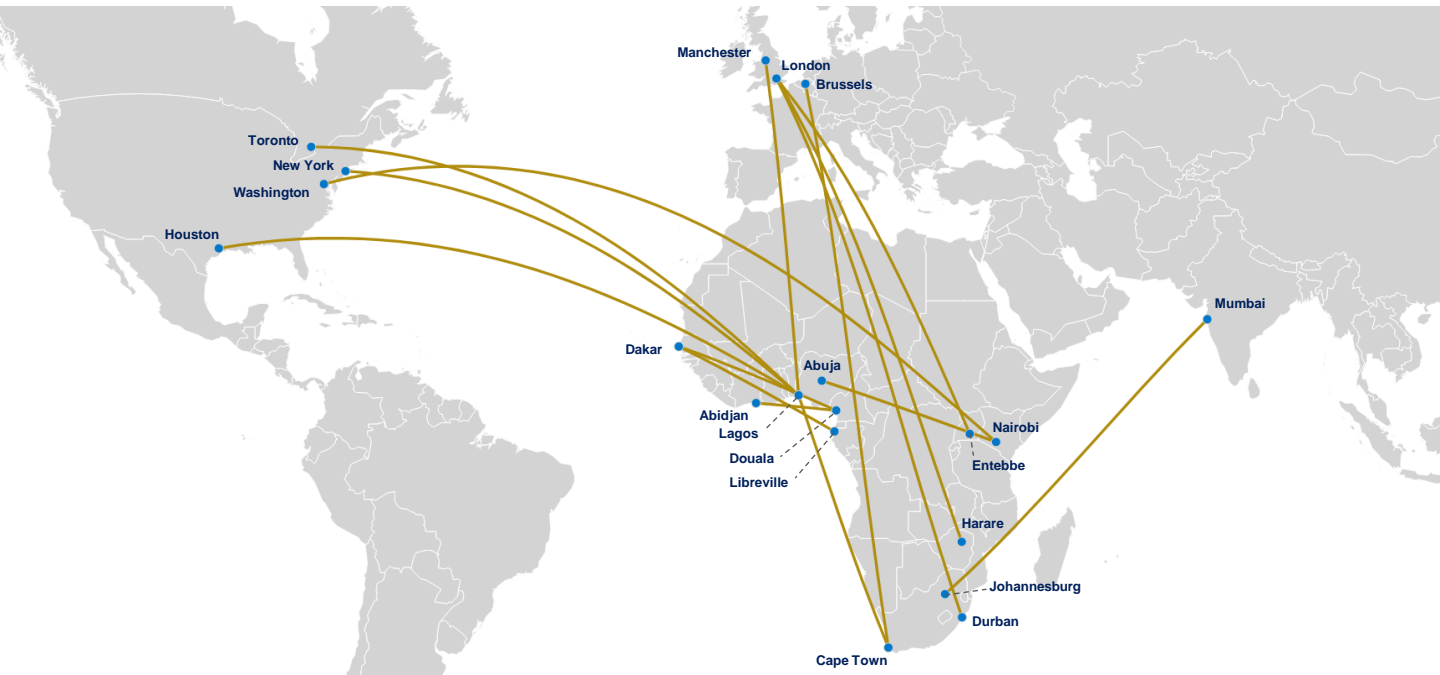
West Africa as a subregion sees the highest number of unserved routes. 9 out of the top 15 unserved routes identified in the study and discussed in this report start or end in West-Africa. With the region's booming population, with its cultural and economic diversity, with the role it plays in international trade and especially when considering the growth forecast for the subregion, the potential to turn the unserved routes into actual ones is substantial. The value of cargo traffic to and from the subregion is another key factor to consider in truly understanding the potential.

Out of the 15 identified unserved routes, 11 previously had non-stop flights. Some of the latter were discontinued years ago, whereas 4 were still in operation back in 2022. Additional details and insights are provided in the dedicated route descriptions within this report.

Overall, the top unserved routes identified for Africa's sub-Saharan region are depicted on the map on the next page and listed in the table below.

Summary

Africa's top tier unserved routes



Non-directional inter-continental city pairs	Non-directional intra-African city pairs
▪ Harare – London	▪ Dakar – Libreville
▪ Johannesburg - Mumbai	▪ Abidjan – Douala
▪ Lagos – New York	▪ Abuja – Nairobi
▪ Lagos – Toronto	▪ Cape Town – Lagos
▪ Entebbe - London	▪ Dakar - Douala
▪ Lagos – Manchester	
▪ Cape Town – Brussels	
▪ Durban – London	
▪ Nairobi – Washington	
▪ Lagos – Houston	

Based on traffic and schedule data covering the period from December 2022 to November 2023

Methodology and Data Sources

As previously indicated, a straightforward approach to screening unserved air routes is by merging O&D traffic data with flight schedule data and by successively filtering out city-pairs that have adequate O&D traffic levels to support continuous non-stop flights but that lack such non-stop service.

With the objective to assess traffic, schedules, capacities and more generally also full market developments, Airbus purchases data from third parties, just as many airlines and other stakeholders of the commercial air transport industry do. Specifically for this study, traffic data from Sabre were combined with schedule data from OAG. As part of the process and in order to identify the presence of charter flights on the routes – if any –, cross-checks were made against recorded flight data as extracted from the flightradar24-database. Aircraft specific data, where needed in this study, were extracted from Cirium's fleets analyser and other data, including macro-economic and demographic information, country profiles, etc. come from S&P Global, available United Nations data files, the World Bank and similar sources.

Given the rapid changes in the commercial air transport landscape, the most effective approach for conducting a study that culminates in a report like this one is to define and adhere to a specific evaluation period. The reference-data used for this study were extracted from the data sources mentioned above for a period of 12 successive months from the beginning of December 2022 to the end of November 2023, corresponding to the most recent 12 months' period for which full traffic data were accessible at the time the study was done.

With the objective of identifying those unserved routes that can be viable candidates for future openings, it is essential to find an aircraft type that is both capable of performing the route and that features the right capacity to accommodate the traffic while equally offering an acceptable flight frequency with decent load factors. When addressing the performance of the aircraft, range capability obviously first comes to mind. Nevertheless, take-off and landing performance also need to be considered. The latter is especially required for airports with specific runway-limitations, high outside air temperatures, a high altitude or a combination of these factors. All Airbus aircraft types with typical 2-class or 3-class configurations were part of the evaluation and typical airline evaluation rules were used for the performance assessment. As the Airbus product range covers standard seating configurations of 100 seats and above, the unserved routes discussed in this report can accommodate these aircraft types and capacity. Some more specific indications are included in the description of each unserved route in part II and part III of this report.

As the decision to open a new non-stop service is not made overnight and as opening new routes can be a lengthy process – if only from an operational and commercial perspective –, the assumption was made that any potential new route will be opened in 2026 soonest. O&D traffic on the identified unserved city-pairs was projected to continue growing at a conservative CAGR of 2.5% until that time. This CAGR of 2.5% compares to a CAGR of 4.1% for traffic growth to, from and within Africa (excluding domestic traffic growth) in the period to 2042 as published in the Airbus Global Market Forecast (GMF) in 2023.

Methodology and Data Sources

Launching a new non-stop service typically leads to an increase in passenger demand. This effect is commonly known as stimulation. Several factors account for this effect.

- A new non-stop service makes the destination more accessible. It encourages people to travel to this destination while they might not have considered doing so before the non-stop service existed.
- Convenience of the non-stop service also contributes to an increased demand. People who abstain from traveling to the destination due to the complexity of the trip and the time it requires, may well decide to do the trip if a non-stop flight exists.
- The launch of non-stop flights often comes with promotional fares. Beyond such initial period, fares for the non-stop service can remain attractive. While yields on non-stop flights are typically higher, total fares for non-stop flights can be lower than those for connecting itineraries, particularly if e.g. the connecting route involves a significant detour. As such, price-sensitive travelers may well get attracted to the non-stop service.
- The introduction of a new route usually results in a cooperation between the airline, the airport and the tourism board of the destination and is usually accompanied by marketing efforts. This increases awareness of the non-stop flight and also generates interest to travel to the newly-served destination.
- A last factor is that of economic impact. New routes attract new traffic. That leads to an increased economic activity in the destination, which in turn will generate new business potential and a potentially increased level of business travel.

The degree of stimulation generated by new non-stop services varies from case to case. It depends, for instance, on the airline's business model and the type of destination. Low cost carriers generally stimulate traffic more than full service carriers. A new non-stop service launched by a low cost carrier to an appealing tourism-destination in summertime generally stimulates traffic considerably more than a new non-stop flight launched by a full-service carrier to an established industrial center. Stimulation factors observed so far range from some percentage points to several hundred percent and beyond. In this study, a conservative and simplified approach was adopted by assuming a stimulation of 65% only, applied on the identified O&D traffic for the reference period and regardless of the city pair.

Even if sufficient O&D traffic is present on a selected unserved route, even if this traffic is expected to grow in the future and even if a certain level of traffic stimulation needs to be anticipated, it is also important to recognise that not all traffic will be captured when initiating a non-stop service. There will always be reasons why some people prefer to travel on connecting flights, with a transit in another airport. It is for this reason that only a share of the projected total traffic is considered to be captured by the new non-stop service on the identified O&Ds. The market capture of the newly launched non-stop flights in this study is assumed to be 70%.

Methodology and Data Sources

A distinction must be drawn between the introduction of a simple point-to-point service and the incorporation of a new destination into an already established and extensive network. The addition of a new destination in a hub-and-spoke network will not only create a new non-stop service between the hub and the newly-served destination, but it will also create a new O&D pair with every other destination that already exists in the network, be it with a transit through the hub of the airline. The outcome is that a new non-stop service can generate some extra connecting traffic in the network of the airline. Obviously this extra network-traffic needs to be accounted for on the leg between the newly opened destination and the hub. Once again, a conservative approach was adopted for this study by assuming a level of 15% connecting traffic, applied on the identified O&D traffic for the reference period and regardless of the city pair.

Particular challenges arise when trying to match required aircraft performance with capacity per flight, flight frequency and load factors. Traffic growth, traffic stimulation and attracting connecting traffic goes hand in hand with offering flexibility and choice to the customer. The higher the frequency of flights, the greater the flexibility and choice the customer has to organize the trip and the higher growth, stimulation and level of connecting traffic on board will be. However, the capacity per flight should align with the traffic that can be captured to secure load factors and to keep the economic performance and profitability of the service in check. The Airbus products embody unique and unmatched combinations of performance, capacity, comfort on board and operating economics, positioning them well to be used on the top unserved routes discussed in this report. The study presented in this report and the classification of the top unserved city pairs was contingent upon meeting two criteria at the start-up of the non-stop service: achieving a minimum average load factor of 70% and operating at least three flights per week each way.

Limitations of the study and this report:

- The unserved routes in the study were identified by means of O&D traffic that existed during the reference period of the study. Any city pair with potential that did not record any traffic during the reference period – no matter for what reason - is therefore not captured.
- Geopolitical matters, constraints resulting from air service agreements, airport slot constraints and any other potential constraints were not considered.
- Economic evaluations covering yields, correlated revenue potential, operating cost analyses and resulting potential profitability of the identified unserved routes were not included within the scope of the study. These elements are considered as customised and confidential information and can vary considerably between airlines. Airbus typically handles these kinds of analyses in private discussions with the airline.
- Only routes that are relevant to aircraft with a capacity of 100 seats and above are considered. Domestic routes were not studied.

Methodology and Data Sources

- Possible moves of competing connecting airlines are not considered in this study. Depending on the importance of the traffic captured by competing airlines, connecting over their hub(s), different levels of competitive reactions need to be anticipated and catered for. A typical reaction to undermine the success of the new non-stop service is a (temporary) reduction of fares offered by the competing connecting airline(s). The business case for the launch of a non-stop service on an unserved route therefore should include a plan to respond to such competing moves. Performing a sensitivity analysis with the market capture as a variable could be an appropriate way to assess this risk.
- Many more unserved city pairs beyond those discussed in this report have the potential to get a non-stop service in the future. The scope of this report is limited to a selection of the top unserved routes only. Any other unserved city pair can still be evaluated separately and might still justify a non-stop service, even if not covered in this report.
- For most of the routes in this report, a recommendation is provided for the aircraft type, capacity, and frequency of service that could be effective. These recommendations are made for each route as if it were a fully isolated case. Naturally, decisions regarding the acquisition or lease of an aircraft type are not based solely on a single route. Comprehensive evaluations of the entire network and fleet solutions typically precede any aircraft acquisition or lease decisions. Airbus' fleet and network solutions team generally conducts these evaluations in close cooperation with the airline(s).



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Abbreviations and Airline Codes

Airline codes

AC	Air Canada
AF	Air France
AT	Royal Air Maroc
BA	British Airways
DL	Delta Air Lines
DT	TAAG Angola Airlines
EK	Emirates
ET	Ethiopian Airlines
EY	Etihad Airways
HC	Air Senegal
HF	Air Côte d'Ivoire
KF	Air Belgium
KL	KLM Royal Dutch Airlines
KP	Compagnie Aérienne ASKY
KQ	Kenya Airways
L6	Mauritania Airlines International
LH	Lufthansa
MS	Egyptair
QR	Qatar Airways
R2	Transair
SA	South African Airways
SN	Brussels Airlines
TK	Turkish Airlines
UA	United Airlines
VS	Virgin Atlantic
WB	RwandAir

Abbreviations

AfCFTA	African Continental Free Trade Area
CAGR	compound annual growth rate
GDP	gross domestic product
O&D	origin-destination
PPDEW	passengers per day each way
PPWEW	passengers per week each way



Airport Codes

ABJ	Abidjan – Ivory Coast
ABV	Abuja - Nigeria
ACC	Accra - Ghana
ADD	Addis Ababa - Ethiopia
AMS	Amsterdam – the Netherlands
ATL	Atlanta, Georgia – United States of America
AUH	Abu Dhabi – United Arab Emirates
BKO	Bamako - Mali
BRU	Brussels - Belgium
CAI	Cairo - Egypt
CDG	Paris - France
CMN	Casablanca - Morocco
COO	Cotonou – Benin
DLA	Douala - Cameroon
DOH	Doha - Qatar
DUB	Dublin - Ireland
DXB	Dubai – United Arab Emirates
EBB	Entebbe - Uganda
EWR	Newark, New Jersey - United States of America
FRA	Frankfurt - Germany
GVA	Geneva - Switzerland
IAD	Washington, Virginia - United States of America
IST	Istanbul - Turkey
JFK	New York (John F. Kennedy airport), New York – United States of America
JNB	Johannesburg – South Africa
KGL	Kigali - Rwanda
LAD	Luanda - Angola
LFW	Lomé - Togo
LGA	New York (LaGuardia airport), New York – United States of America
LHR	London (Heathrow airport) – United Kingdom
LOS	Lagos - Nigeria
LUN	Lusaka - Zambia
NBO	Nairobi - Kenya
NSI	Yaoundé - Cameroon
VIE	Vienna - Austria





Part II
Unserved routes to and from
Africa's sub-Saharan region

HARARE - LONDON

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Harare-London: **209 PPDEW** (Aug. 2016)
- London-Harare: **202 PPDEW** (Dec. 2018)

Average monthly pax

	2019	last 12 months ²
Harare-London:	3 602	4 842
London-Harare:	3 532	3 716

Traffic growth

Pax number growth (CAGR 2015-2019): **2.3 %**

Status of traffic-recovery on the city-pair

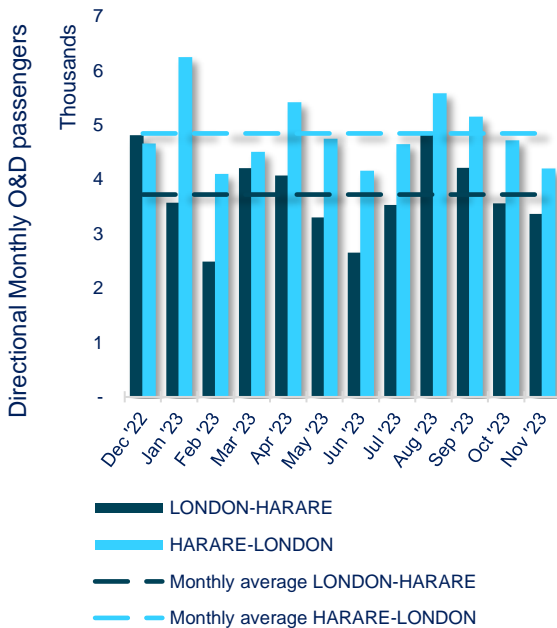
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **119 %**

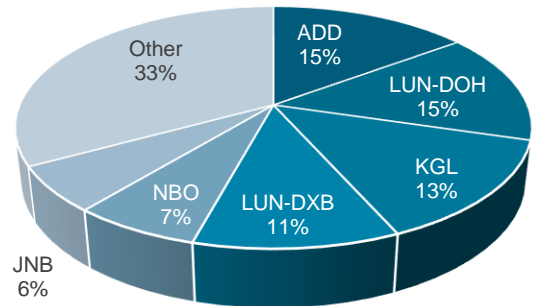
Traffic seasonality²

Max. deltas vs. average monthly traffic:

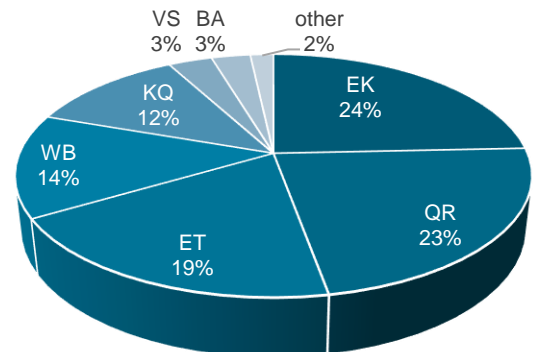
- + 31%
- 33%



Current primary transit-hubs²



Carriers breakdown²



Notes

- ¹: period from January 2015 up to and including November 2023
- ²: period from December 2022 up to and including November 2023

HARARE - LONDON

Interpretation, future projection and opinion

Zimbabwe is a landlocked country in Southern Africa. It is bordered by Zambia, Mozambique, South Africa and Botswana. Harare, the capital city of Zimbabwe, is situated in the country's northeast and has an estimated population of 1.8 million. Zimbabwe's air access is facilitated by Air Zimbabwe and Fastjet Zimbabwe, both local airlines. The majority of flights to and from the country are operated by foreign carriers. Air connectivity during the evaluated period was primarily limited to destinations in surrounding countries, with the longest non-stop flights being Ethiopian Airlines' flights to or from Addis Ababa. The intercontinental route between Harare and London appears to be Africa's most important unserved route, based on the recorded O&D traffic levels during the reference period of this study.

People mainly travel between London and Harare for tourism purposes, with Victoria Falls undoubtedly being one of the primary attractions. Additionally, about 170 000 people born in Zimbabwe were known to live in the UK in 2020, up from 21 000 back in 1990¹. VFR traffic therefore also plays a role. The historical relationship between Zimbabwe and the UK contextualises this situation.

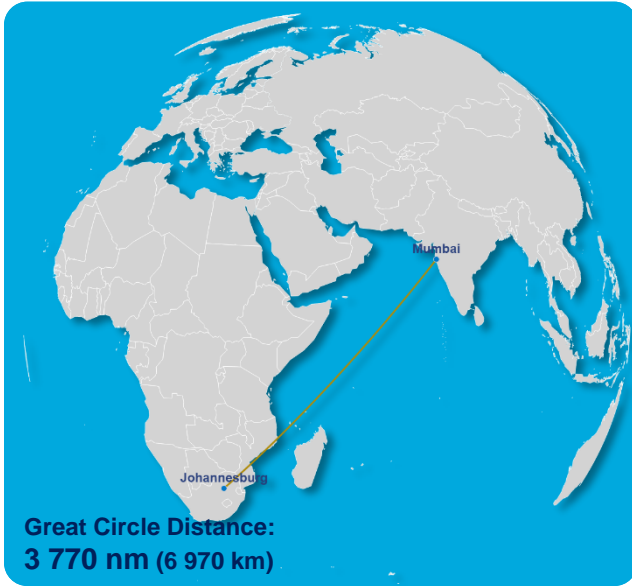
British Airways used to perform non-stop flights on the route between Harare and London. Available data that go back to 2005 show that BA operated 777-200(ER)s on the route at that time. They performed 2 to 3 flights per week each way, with an average capacity of approximately 265 seats per flight. These operations were suspended at the end of October 2007. In parallel to BA's operations from London Heathrow, Air Zimbabwe operated the route between Harare and London Gatwick and continued doing so until April 2012. Back in the IATA-summer of 2006, Air Zimbabwe's service reached nearly a daily flight in both directions. They deployed their 767-200ER with a capacity close to 200 seats. BA's and Air Zimbabwe's service together reached about 40 flights per week in each direction in mid 2006. Air Zimbabwe's service, however, knew some periods with service-interruptions.

The route features some clear seasonal variations in demand, with peak demand occurring around Easter, in August and the end of the year. Obviously, these moments of peak demand are linked to the holiday periods in the Northern hemisphere. From early 2015 to the end of 2019, traffic levels grew at a CAGR of 2.3%. During the peak month of 2019, average traffic levels went up as high as 195 PPDEW. Traffic already recovered from the pandemic and for the period evaluated in this study, it even had increased to a small 20% beyond the pre-pandemic levels. Relationships between the United Kingdom and Zimbabwe are reported to slowly improve, what could create the right environment for a future accelerated traffic growth on the route.

Interesting to see is that Emirates and Qatar Airways together attract about half of the traffic on the city pair even if the routing via Dubai or Doha is much longer than the itinerary that connects via ADD, KGL, NBO and JNB.

The forecasted captured traffic resulting from the methodology described above would be sufficient to operate 6 weekly flights each way with a widebody aircraft in the 250 seats-category (e.g. A330-200/-800) from 2026 onwards, or more than 5 weekly frequencies with a widebody aircraft in the 280-330 seats-category (e.g. A330-300/-900 or A350-900). These frequencies are averaged over the calendar year but could vary depending on the time of the year, aligning with observed seasonal traffic variations.

JOHANNESBURG - MUMBAI



Traffic data

Max observed monthly traffic¹

- Jo'burg-Mumbai: **260 PPEW** (May 2017)
- Mumbai-Jo'burg: **261 PPEW** (May 2017)

Average monthly pax

	2019	last 12 months ²
Jo'burg-Mumbai:	4 419	3 347
Mumbai-Jo'burg:	4 972	3 703

Traffic growth

Pax number growth (CAGR 2015-2019): **2.3 %**

Status of traffic-recovery on the city-pair

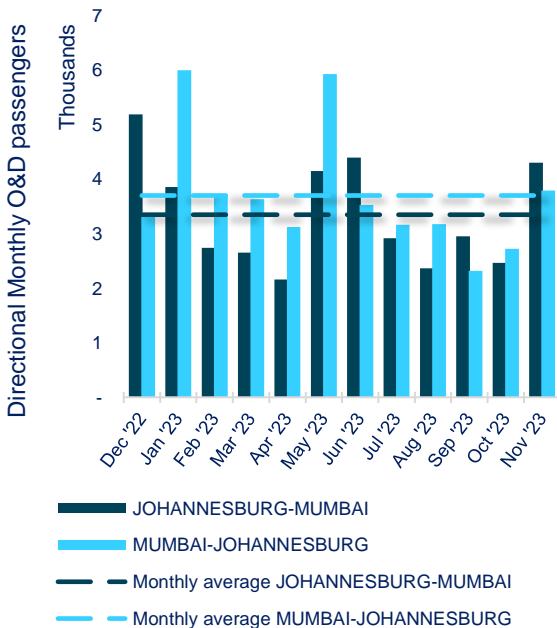
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **75 %**

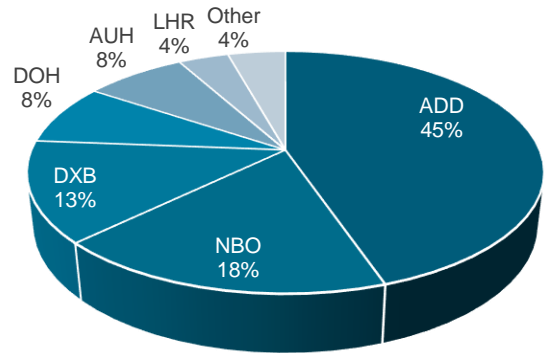
Traffic seasonality²

Max. deltas vs. average monthly traffic:

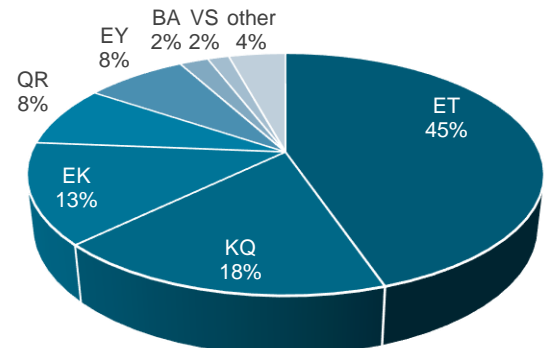
- + 62%
- 37%



Current primary transit-hubs²



Carriers breakdown²



Notes 1: period from January 2015 up to and including November 2023
 2: period from December 2022 up to and including November 2023

JOHANNESBURG - MUMBAI

Interpretation, future projection and opinion

The unserved route between Johannesburg and Mumbai takes the second place in the list of unserved routes to or from mainland Africa and is an interesting route to evaluate. Currently, there is no non-stop service available between the entire subregion of Southern Africa and India. Moreover, the route between the two cities sees substantial O&D traffic levels that surpass those of many existing non-stop services to and from Africa.

The O&D is a growth market, illustrated by a CAGR of 2.3% between 2015 and 2019. As for many traffic flows to or from Southern Africa, traffic levels took a significant hit during the pandemic and data available at the time of this study shows a return to only 75% of pre-pandemic levels. A first win of launching a non-stop service on this city pair could potentially be to recapture the lost traffic.

Today, Ethiopian Airlines, Kenya Airways and the ME3 carriers capture the main share of the traffic on the O&D via their respective hubs. The routings constitute a significant detour, ranging from an additional 10% distance for Kenya Airways connecting traffic via Nairobi to approximately 25% for Qatar Airways' connections through Doha. It is remarkable to observe that 4% of the current traffic between Johannesburg and Mumbai opts to fly British Airways or Virgin Atlantic via London. This choice results in an itinerary distance exceeding 2.3 times that of a direct flight between the two cities. Could this possibly exemplify the strong loyalty of certain frequent and/or premium travelers to the BA and VS brand(s) or their frequent flyer programmes?

Several specific challenges are applicable for the route:

1. Johannesburg is a so-called "hot and high" airport, resulting in challenging take-off conditions. Situated at 1 700 m (5 500 feet) above mean sea level, the air is thin. Considering the challenging take-off conditions and the route's approximately 7 000 km distance between Johannesburg and Mumbai, the performance of a widebody aircraft is necessary for the route.
2. Fuel prices are generally high in Africa and that is not different in South Africa. Consequently, particularly the leg from Johannesburg to Mumbai will entail a considerable cost increase, necessitating adjustments in corresponding fares.
3. Traffic on the route has shown some strong seasonal variations, with periods of peak demand occurring at the end of the calendar year and during the months of May and June. The airline initiating the route should thus accommodate these fluctuations in demand.

A deep-dive into the history of the route shows that both South African Airways and the now-defunct Jet Airways were active on the route in the past. Between April 2010 and June 2012, both airlines simultaneously operated the route. Total frequencies on the route peaked at more than 11 weekly directional flights during the IATA-summer of 2010. At that time, nearly 2 700 directional seats were offered per week. SAA mainly deployed the A340-200/-300 on the route and later switched to the A330-200. Jet Airways exclusively used the A330-200 during the time they operated the route.

JOHANNESBURG - MUMBAI

Interpretation, future projection and opinion (continued)

So what prospects lie ahead for the route?

The range capability of small widebody aircraft (A330-200/-800) departing from Johannesburg is generally adequate to operate the route. The projections from this study indicate that the forecasted captured traffic in 2026 could sustain 6 directional flights per week utilising a widebody aircraft in the 250 seat-category (e.g. A330-200/-800). 5 weekly frequencies could be upheld with a widebody aircraft in the 280-330 seat-category (e.g. A330-300/-900 or A350-900). These frequencies are based on operations averaged over the calendar year but could naturally fluctuate in line with observed traffic variations, as previously mentioned.

The momentum gained by the BRICS-countries in the concurrent geopolitical context could expedite the traffic growth on the route. Both India and South Africa, being part of the BRICS alliance, are favourably positioned to benefit from this development. The analysis of historic traffic data indicates that O&D traffic between BRICS countries as a whole experienced a CAGR of 12.8% during the period from early 2015 to the end 2019.

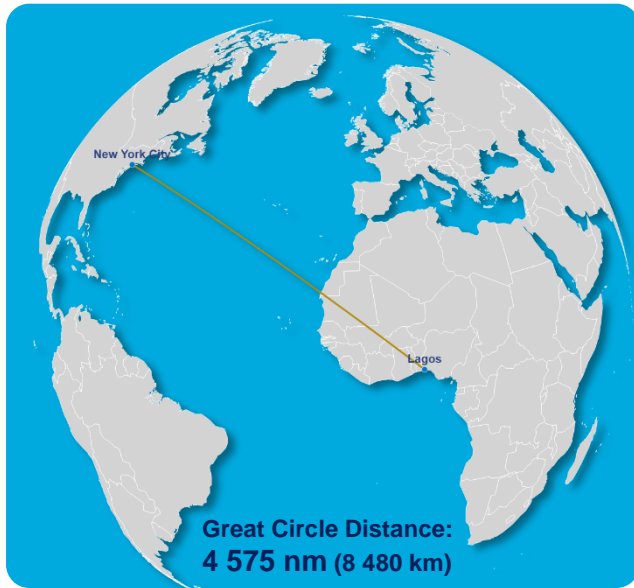
Candidate airlines to reintroduce the non-stop service can be found at both ends of the route. Based in Johannesburg and having operated the route in the past, SAA seems a trivial candidate. On the other end of the route, both Air India and Indigo have announced substantial orders for widebody aircraft. Moreover, these carriers hold an advantage due to their extensive domestic networks in India, which could serve to feed the long-haul flight. Could these airlines be preparing to reintroduce the route? Is there any potential for collaboration between airlines at both ends? Time will tell.



LAGOS – North America

I. NEW YORK

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Lagos-New York: **362 PPDEW** (July 2018)
- New York-Lagos: **315 PPDEW** (Aug. 2018)

Average monthly pax

	2019	last 12 months ²
▪ Lagos-New York:	5 385	3 188
▪ New York-Lagos :	4 966	3 123

Traffic growth

Pax number growth (CAGR 2015-2019): **2.4 %**

Status of traffic-recovery on the city-pair

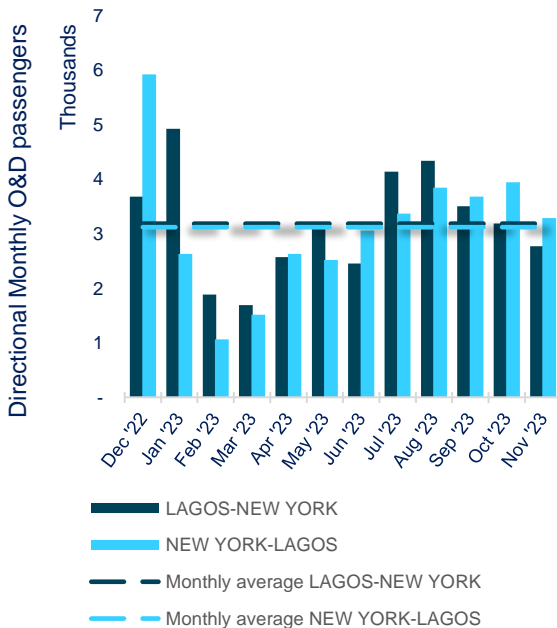
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **60 %**

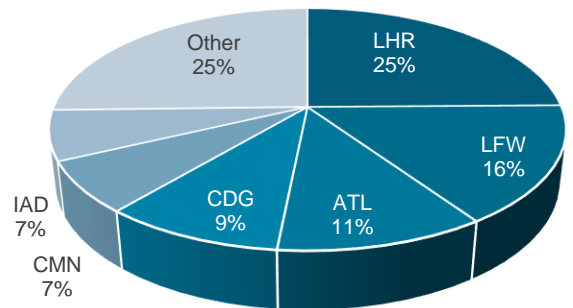
Traffic seasonality²

Max. deltas vs. average monthly traffic:

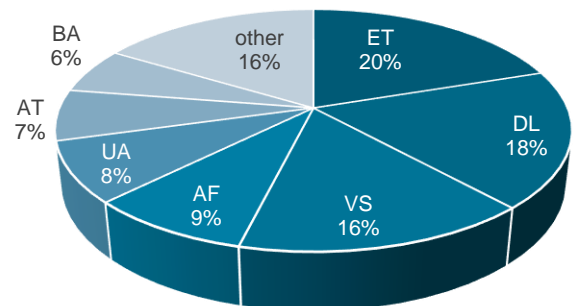
- + 90%
- 66%



Current primary transit-hubs²



Carriers breakdown²



Notes 1: period from January 2015 up to and including November 2023
2: period from December 2022 up to and including November 2023

LAGOS – North America

II. TORONTO

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Lagos-Toronto: **165 PPDEW** (Aug. 2023)
- Toronto-Lagos: **113 PPDEW** (Dec. 2019)

Average monthly pax

	2019	last 12 months ²
▪ Lagos-Toronto :	1 991	3 086
▪ Toronto-Lagos :	1 962	1 845

Traffic growth

Pax number growth (CAGR 2015-2019): **12.8 %**

Status of traffic-recovery on the city-pair

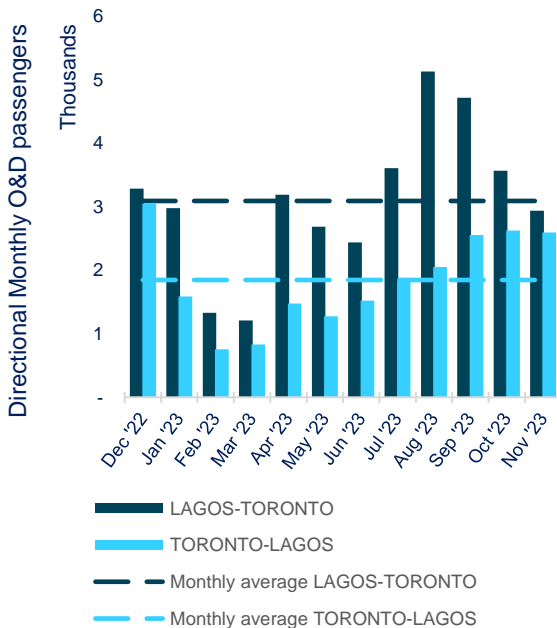
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **127 %**

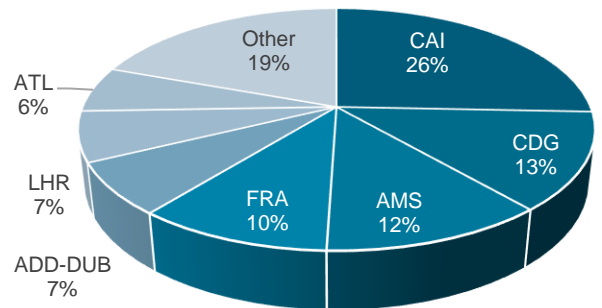
Traffic seasonality²

Max. deltas vs. average monthly traffic:

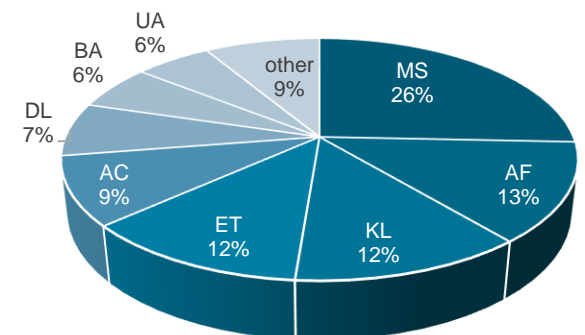
- + **66%**
- **61%**



Current primary transit-hubs²



Carriers breakdown²



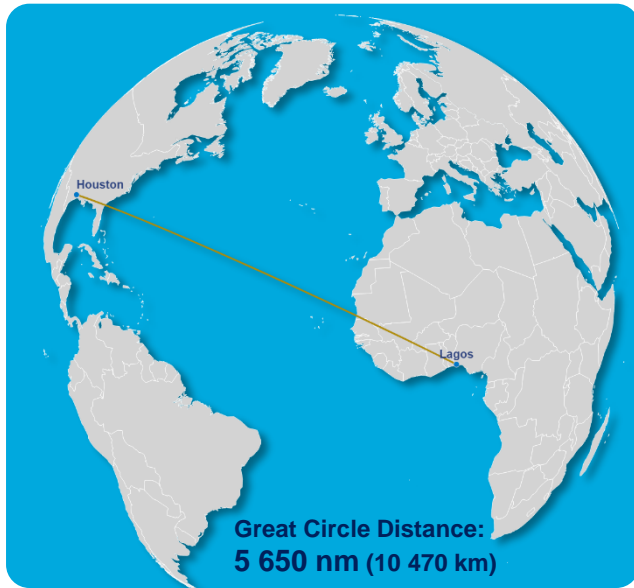
Notes

¹: period from January 2015 up to and including November 2023
²: period from December 2022 up to and including November 2023

LAGOS – North America

III. HOUSTON

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Lagos-Houston: **200 PPDEW** (Jul. 2016)
- Houston-Lagos: **141 PPDEW** (Sep. 2017)

Average monthly pax

	2019	last 12 months ²
▪ Lagos-Houston:	2 866	2 031
▪ Houston-Lagos:	2 763	2 013

Traffic growth

Pax number growth (CAGR 2015-2019): **0.7 %**

Status of traffic-recovery on the city-pair

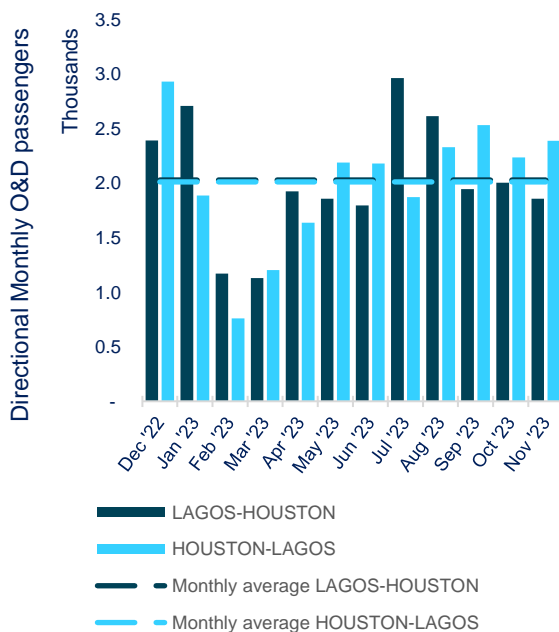
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **71 %**

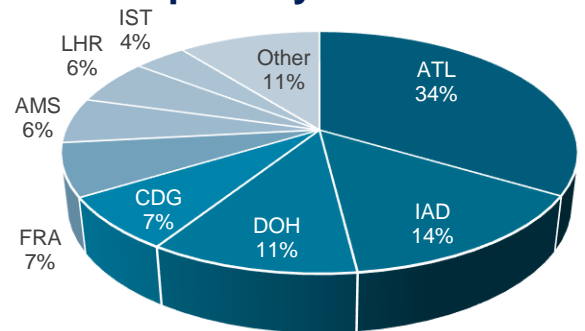
Traffic seasonality²

Max. deltas vs. average monthly traffic:

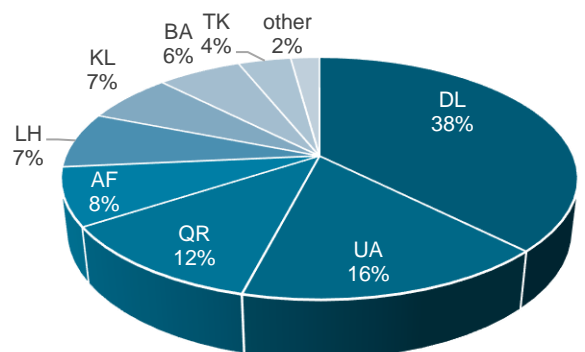
- + 46%
- 62%



Current primary transit-hubs²



Carriers breakdown²



Notes

- ¹: period from January 2015 up to and including November 2023
- ²: period from December 2022 up to and including November 2023

LAGOS – North America

Interpretation, future projection and opinion

With an estimated population of over 16 million people, Lagos is one of the most populous cities in (West) Africa. Next to being one of Africa's major financial centers, it hosts key industries including telecommunications, oil and gas and manufacturing. Additionally, it takes pride of having one of the largest ports of Africa, solidifying its status as an economic and trade powerhouse on the continent and a hub with great future potential for the air transport industry. Lagos is the largest urban area in Nigeria and, according to the UN, one of the top 10 fastest growing cities in the world. Nigeria is the largest economy in Africa, with a forecasted GDP for 2024 expected to be about 30% larger than those of Africa's second and third economies, Egypt and South Africa, respectively.

Large and growing metropolises generate significant demand for air traffic. Moreover, growing cities are attractive for (foreign) investment. Nigeria's commitment to the African Union's African Continental Free Trade Area provides major opportunities to enhance socio-economic development and to boost the country's prosperity. With a score of 0.864 on 1, Nigeria positioned 5th best of all African countries in the African Union's Visa Openness score for 2023. Travel to and from Nigeria therefore seems relatively easy in comparison to traveling to or from other African countries.

The Nigerian diaspora is substantial and widely dispersed across the globe. Significant Nigerian communities are present in North America, particularly in key areas like New York and Houston in the USA as well as Toronto in Canada. Many Nigerians abroad are well-educated and Nigerians are recognized worldwide for their strong entrepreneurial drive.

In this setting, it is surprising to observe that throughout the entirety of the year 2023 and up to the conclusion of the IATA-summer in 2024, merely two routes connected Nigeria with North America and that both routes were operated by non-Nigerian operators: Lagos-Atlanta, operated by Delta Air Lines and Lagos-Washington, operated by United Airlines. What is particularly remarkable is that during the same period, the whole region of West Africa only had three entry-points in North America: Atlanta, New York and Washington.

Based on the traffic-data analysed in this study, three unserved routes to or from Lagos pop-up with potential for opening in the future: Lagos-New York, Lagos-Toronto and Lagos-Houston.

Lagos-New York

As shown in the dashboard above, traffic between Lagos and New York has grown with a CAGR of 2.4% from 2015 to 2019. Traffic is not back yet to where it was before the pandemic, having reached 60% only of the levels reached during the last 12 months before the pandemic.

Arik Air offered a non-stop service on the route from April 2010 to February 2017. They first did so using the A340-500 and transitioned to the A330-200 later on. Delta Air Lines stepped in from March 2018 and operated non-stop flights on the route using A330-200s. The airline interrupted operations during the pandemic, but returned to the route in July 2021. From that moment to October 2022, they operated both A330-200s and 767-300ERs on the route, be it with lower frequencies than before and with some periods during which the service was interrupted.

LAGOS – North America

Interpretation, future projection and opinion (continued)

At the end of April this year, exactly at the time the research for this study was done, Delta Air Lines made the announcement that they will restart non-stop operations on the route. The airline will offer 7 weekly flights in December 2024 and during the first half of January 2025, the period around the end of the year with already-observed peak demand, after which it is understood that the non-stop service will be continued at 3 frequencies per week. The A330-200 with a capacity of 223 seats will be used on the route. Together with their non-stop service between Atlanta and Lagos, Delta Air Lines will offer 14 weekly flights between the USA and Lagos from 1st December 2024, to get back to a total of 10 non-stop flights from mid-January 2025.

The absence of a non-stop service on the Lagos-New York route since October 2022 is likely the reason why traffic only returned to 60% of pre-pandemic levels over the period under review. Re-opening the non-stop service between Lagos and New York could therefore be a quick way to regain the missing traffic. The traffic development on the route from the moment Delta Air Lines returns will therefore be interesting to monitor.

The breakdown of the connecting traffic per operator and transit hub over the period under review shows that Ethiopian Airlines was quite successful in capturing traffic on the route. It is understood that this was done through the fifth freedom traffic rights the airline has on their flights from both Lomé and Abidjan to New York. This is a space to watch as statements in the media suggest that Ethiopian Airlines has the ambition to further increase the number of 5th freedom flights between West Africa and North America.

Lagos-Toronto

Most of the general comments made above also apply for the routes between Lagos and Toronto and between Lagos and Houston.

Particular attention needs to be given to the growth of the traffic observed between Lagos and Toronto. Between 2015 and 2019, a notable CAGR of 12.8% was achieved. Remarkably, the traffic levels in the period under review climbed 27% above what was recorded before the pandemic. The city pair clearly sees an increase in demand.

Travel options on the city pair seem not abundant with passengers opting to make large detours via e.g. Cairo, Frankfurt and Amsterdam. 7% of the travelers chose Ethiopian Airlines' service via their hub in Addis Ababa. The latter had a second stop in Dublin on the way to Toronto during the evaluation-period, which is understood to be a technical stop.

Traffic data show that the route features a particular challenge, which is that the city pair sees quite some asymmetry in traffic volumes. More people travel from Lagos to Toronto than from Toronto to Lagos. Post-pandemic, this effect seems to have significantly intensified. That is not the case for the other North American destinations of New York and Houston.

Analysis of historical flight schedules shows that there have been no regularly scheduled non-stop flights between the two cities to date.

LAGOS – North America

Interpretation, future projection and opinion (continued)

Lagos-Houston

Apart from the rather important diaspora of Nigerian people to both Toronto and Houston, the obvious additional link between Lagos and Houston is that both cities are major players in the global oil industry and oil trade.

Continental Airlines operated on the route until it merged with United Airlines in 2012. From that point onwards, operations persisted under the United Airlines brand until the end of June 2016. 777s were used on the route until August 2013, from which point the 787-8 was used. Some seasonal variations existed in the number of flights offered, but frequencies remained between 20 and 30 directional flights each month for the entire period of operations. Monthly directional seats offered on the route averaged around 6 000 seats.

Traffic on the route remained rather stable in the period from 2015 to 2019, which is quite positive considering that the non-stop service was discontinued during this period. Traffic levels for the period under review had returned to 70% of the pre-pandemic levels only. Opening a non-stop flight on the city pair could – here too – be a quick way to regain the lost traffic.

The breakdown of the connecting traffic per operator and transit hub over the period under review shows that Delta Air Lines captured the lion's share of the traffic and connected that traffic over their hub in Atlanta. While United Airlines (and Continental Airlines before them) were the strongest operators on the city pair with their non-stop service, Delta Air Lines clearly became the dominant player after United Air Lines' exit.

The projections from this study indicate that the forecasted captured traffic in 2026, starting from the traffic observed during the period from December 2022 through November 2023 and applying the methodology described above, could sustain 5 directional flights per week utilising a widebody aircraft in the 250 seat-category (e.g. A330-200/-800) for Lagos-New York and Lagos-Toronto. For these city pairs, 4 weekly frequencies could be upheld with a widebody aircraft in the 280-330 seat-category (e.g. A330-300/-900 or A350-900). For the non-stop operations between Lagos and Houston, the forecasted traffic numbers could easily support 3 weekly directional flights with the specified widebody aircraft. Once again, these frequencies are based on operations averaged over the calendar year but could naturally fluctuate in line with observed traffic variations.

Last but not least, rumours circulating in the media at the time this report was compiled suggest that (a) Nigerian operator(s) is / are currently building plans to open more routes between Lagos and North America. Based on the above, more non-stop flights to New York and the introduction of non-stop services to Toronto and Houston could well be part of these plans. Here again, time will tell.

ENTEBBE - LONDON

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Entebbe-London: **185 PPDEW** (Sep. 2018)
- London-Entebbe: **202 PPDEW** (Jul. 2015)

Average monthly pax

	2019	last 12 months ²
Entebbe-London:	2 598	2 938
London-Entebbe:	2 600	3 055

Traffic growth

Pax number growth (CAGR 2015-2019): **-5.5 %**

Status of traffic-recovery on the city-pair

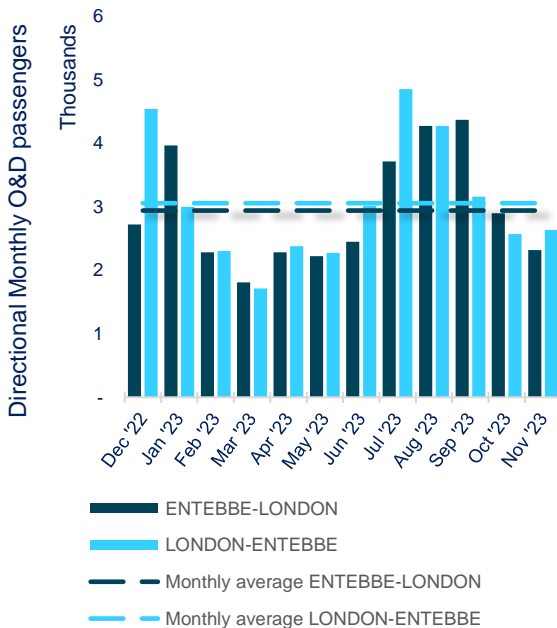
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **117 %**

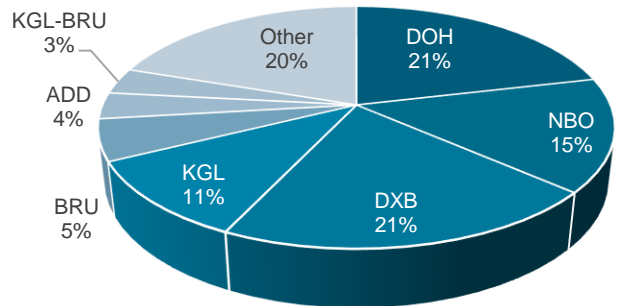
Traffic seasonality²

Max. deltas vs. average monthly traffic:

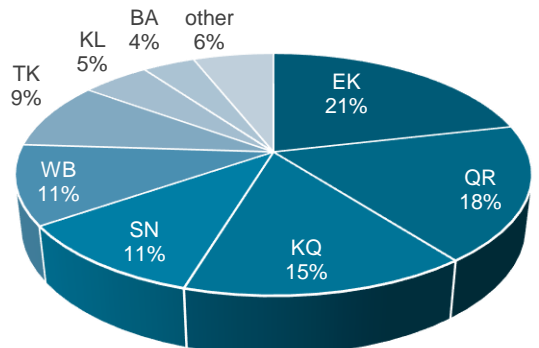
- + 59%
- 44%



Current primary transit-hubs²



Carriers breakdown²



Notes

- 1: period from January 2015 up to and including November 2023
- 2: period from December 2022 up to and including November 2023

ENTEBBE - LONDON

Interpretation, future projection and opinion

“For magnificence, for variety of form and colour, for profusion of brilliant life — bird, insect, reptile, beast — for vast scale — Uganda is truly ‘the Pearl of Africa.’” Sir Churchill (1908)

Uganda is a landlocked nation in East Africa, bordered by South Sudan, Kenya, Tanzania, Rwanda and the Democratic Republic of the Congo. Its relative stability makes it an attractive destination for visitors to the region. People travel from London to Entebbe with the objective of encountering Uganda’s mountain gorillas and wild chimpansees, or embarking on a safari. Tourism accounts for approximately 8% of Uganda’s GDP and is expected to grow in the future. The tourism-oriented character of a significant portion of the traffic explains the rather seasonal character of the traffic flow on the city pair, with periods of peak demand coinciding with holiday-periods in the United Kingdom.

The UK has been a longstanding development partner of Uganda, particularly supporting Uganda’s efforts to maintain regional stability. The UK’s and Uganda’s shared history has left many links, including the connection as Commonwealth members. Trade between Uganda and the UK is important and growing, with Uganda primarily exporting perishables and the UK mainly supplying pharmaceuticals and machinery. A notable number of Uganda-born people live in the United Kingdom. In 2020, more than 76 300 Ugandans were known to live in the UK, up from about 49 600 in 1990¹.

People travel between London and Uganda primarily via the Middle East, transiting typically in Doha or Dubai. Nairobi and Kigali also serve as key transit airports. Emirates, Qatar Airways, Kenya Airways and RwandAir are the carriers that attracted the largest share of the traffic on the city pair in the evaluated period. Some notable portion of the traffic also travelled with Brussels Airlines via Belgium’s capital. Traffic numbers on the city pair peaked at the end of 2019, but subsequently collapsed during the pandemic, with successive COVID-waves clearly visible in the traffic profile. From 2022 onwards, traffic has picked-up with average monthly passenger numbers in 2023 attaining a 17% higher level vs the average monthly traffic observed in 2019.

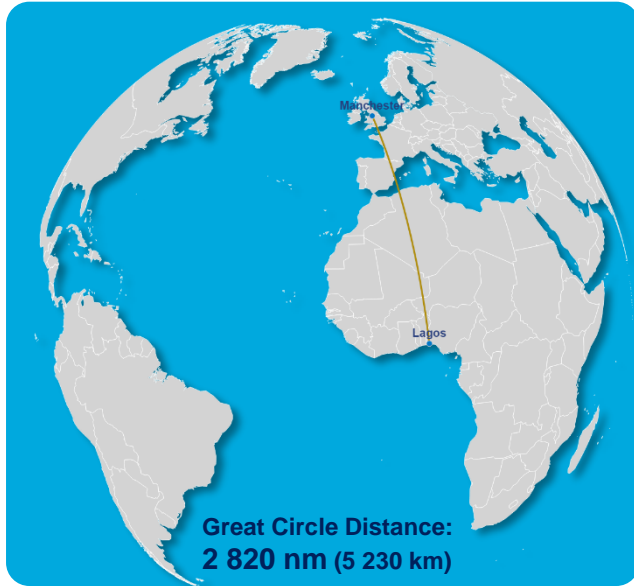
Historical flight data show that British Airways operated the route between London and Entebbe until October 2015. Until that time, the airline had used the 767-300ER to perform about 4 flights each way every week with an average capacity of about 190 seats per flight.

Media reports suggest that Uganda Airlines has been interested in (re-)launching the non-stop service between Entebbe and London Heathrow for quite some time. Administrative matters and obtaining the necessary permits in a rapidly evolving context, including Brexit, have so far prevented the airline from doing so.

The airline would be well-positioned to launch the non-stop service, deploying their A330-800s on the route. Considering the future projections based on the outlined assumptions, as well as the expected captured portion of the traffic, the route between Entebbe and London has the potential to evolve into a viable non-stop route. Widebody aircraft with a capacity in the range of 250 seats, like the A330-800, are expected to obtain good load factors when performing 5 directional flights per week as of 2026.

LAGOS - MANCHESTER

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Lagos-Manchester: **130 PPDEW** (Oct. 2023)
- Manchester-Lagos: **58 PPDEW** (Jan. 2023)

Average monthly pax

	2019	last 12 months ²
▪ Lagos-Manchester:	1 344	2 874
▪ Manchester-Lagos:	1 140	1 366

Traffic growth

Pax number growth (CAGR 2015-2019): **7.2 %**

Status of traffic-recovery on the city-pair

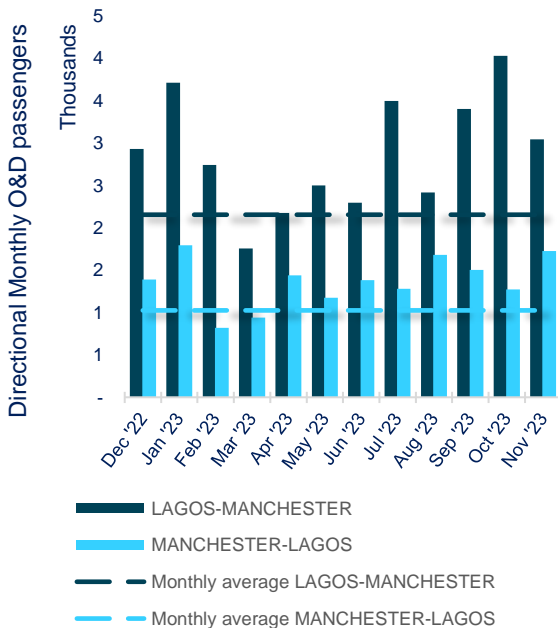
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **171 %**

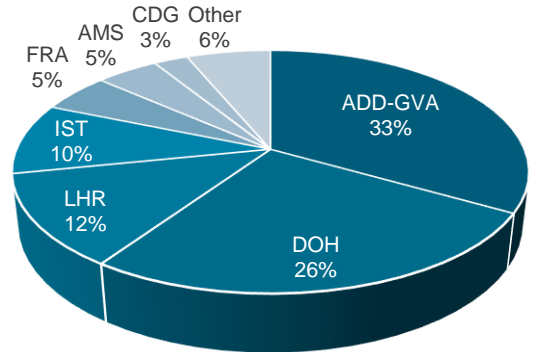
Traffic seasonality²

Max. deltas vs. average monthly traffic:

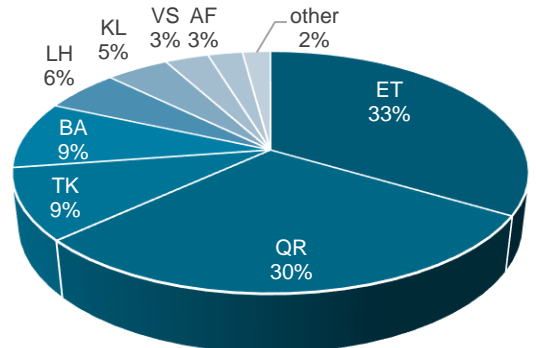
- + 40%
- 40%



Current primary transit-hubs²



Carriers breakdown²



Notes

- ¹: period from January 2015 up to and including November 2023
- ²: period from December 2022 up to and including November 2023

LAGOS – MANCHESTER

Interpretation, future projection and opinion

Next in the row is the unserved route between the bustling cities of Lagos and Manchester. Even when examining data as far back as 2005, OAG schedule data records indicate that the city pair has never had a regularly scheduled non-stop service.

Notwithstanding the historical ties between both countries dating back to the colonial era, notwithstanding their shared membership of the Commonwealth, notwithstanding economic and cultural links, and most importantly, despite the notion that the United Kingdom is Nigeria's most important international destination in terms of O&D traffic, non-stop flights between both countries in 2022 and 2023 only existed to or from London Heathrow. British Airways and Virgin Atlantic both operated non-stop flights from London Heathrow to Abuja and Lagos.

Air Peace started non-stop operations between Lagos and London Gatwick at the end of March 2024. Media reports indicate that the latter carrier's flights are in high demand with Nigerians seeking lower fares on the route. Furthermore, media sources report that a significant price war is brewing now that competition has increased on that route.

O&D traffic between Lagos and Manchester has not only fully recovered but has significantly exceeded pre-pandemic levels in the meantime. This trend represents just a continuation of the robust growth, with a CAGR exceeding 7% on the city pair, as recorded before the pandemic.

Given this context, and considering that North West England, particularly the urban area of Manchester, hosts a sizable portion of the Nigerian community within the United Kingdom, a non-stop service between Lagos and Manchester could become an appealing alternative for traveling between Lagos and the United Kingdom. Moreover, as Manchester is home of several prestigious universities and colleges, many young Nigerians travel to Manchester to pursue undergraduate and postgraduate degrees. At least a portion of this traffic could easily move to a new non-stop service between Lagos and Manchester. In fact, the latter traffic type helps to partly explain the imbalance in traffic volumes observed in opposite directions on the city pair.

It may seem counter-intuitive, but people generally do not opt to travel via London Heathrow to connect before or after taking a domestic flight between London and Manchester. Only 12% of the O&D traffic on the route chooses this option. Roughly 70% of the O&D traffic transits through Addis Ababa, Doha or Istanbul. Each of these transit points entails a significant detour compared to either the prospective non-stop flight or an itinerary with a transit point more centrally located in Europe. Even more strikingly, a notable portion of the people transiting in Addis Ababa opt to continue their journey on Ethiopian Airlines' service to Manchester, which – in the evaluated period - included an intermediate stop in Geneva. From this perspective, a non-stop service from Lagos to Manchester could remarkably enhance convenience and reduce travel time.

LAGOS – MANCHESTER

Interpretation, future projection and opinion (continued)

The distance between both cities allows performing the flight with both single aisle and widebody aircraft. Single aisle types like the A320neo and A321neo could be used to open the route and quickly build up frequencies, while another solution could be to use all A330-variants and even the A350-900 on the route. The latter would certainly be used at lower frequencies, but they can still be advantageous, especially if cargo plays a significant role as a business contributor.

Because of the disparity in traffic volumes between both directions, one of the approaches to evaluate the route is to only consider the full trip as a business case rather than considering both segments as isolated scenarios. From this angle, the A320neo and A321neo offer the advantage of enabling a quick ramp-up of frequencies on the route, while the trip cost remains in check. The latter can especially be interesting in view of the lower observed demand for the segment from Manchester to Lagos.

Considering the projections for the future based on the assumptions outlined above, along with the anticipated captured part of the traffic, following scenarios are conceivable. Single aisle aircraft with a 2-class layout and a capacity in the range of 150 to 220 seats (e.g. A320s or A321s) are expected to obtain good load factors when performing up to 5 directional flights per week as of 2026. Widebody-aircraft with a 3-class layout and seat counts ranging from 250 to 330 seats (e.g. A330-800/-900 or the A350-900) could be used to perform about 3 frequencies per week as of the same start-up timing. As mentioned above, this option would be even more appealing if cargo brings extra business potential. On top of the frequency-adjustment to cater for seasonal variations in demand, a seasonal shift from Airbus single aisle to Airbus widebody aircraft can be an option. With the commonality between these types, exceptional levels of operational flexibility can be achieved, especially when making use of the mixed fleet flying solutions the Airbus product line offers.



CAPE TOWN - BRUSSELS

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Cape Town-Brussels: **123 PPDEW** (Oct. 2023)
- Brussels-Cape Town: **96 PPDEW** (Feb. 2018)

Average monthly pax

	2019	last 12 months ²
▪ Cape Town-Brussels:	1 922	2 601
▪ Brussels-Cape Town:	1 461	1 919

Traffic growth

Pax number growth (CAGR 2015-2019): **5.4 %**

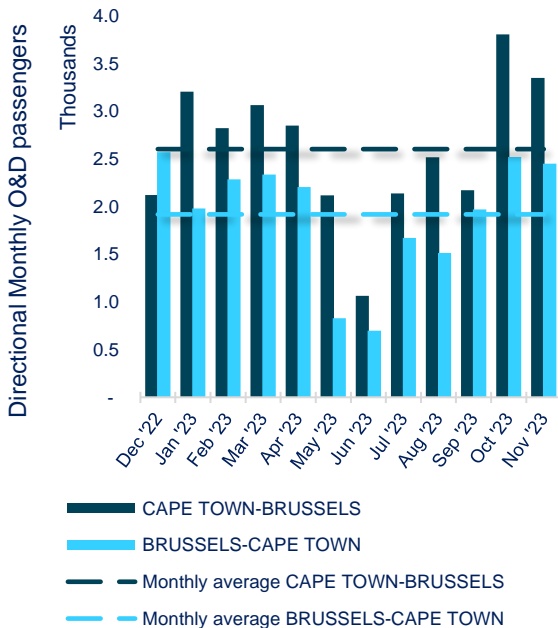
Status of traffic-recovery on the city-pair Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **134 %**

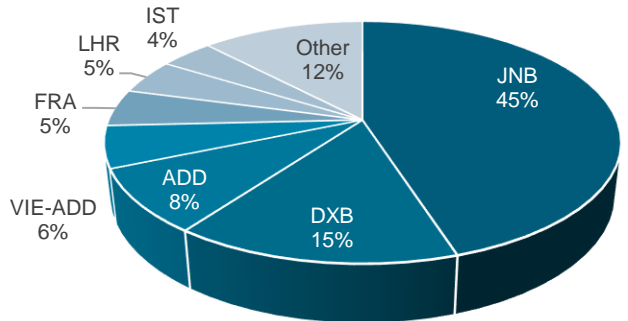
Traffic seasonality²

Max. deltas vs. average monthly traffic:

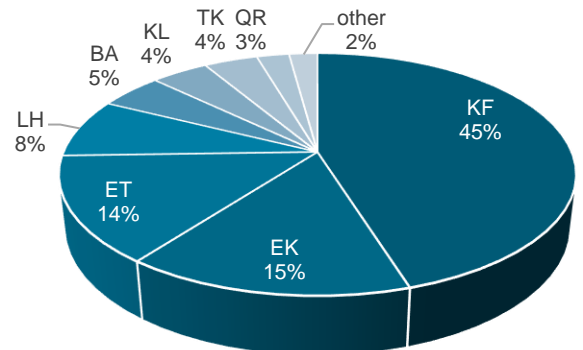
- + 46%
- 64%



Current primary transit-hubs²



Carriers breakdown²



Notes 1: period from January 2015 up to and including November 2023
2: period from December 2022 up to and including November 2023

CAPE TOWN - BRUSSELS

Interpretation, future projection and opinion

Cape Town – Brussels is a city pair that has already proven to hold potential. During the period under review, 48% of the non-directional O&D traffic between South Africa and Belgium travelled between Brussels and Cape Town, while Brussels-Johannesburg accounted for 45% of that traffic. The remaining 7% travelled to other destinations, such as Durban, Port Elizabeth and George.

With the obvious exception of the pandemic period, the O&D traffic between Brussels and Cape Town grew considerably over recent years, achieving a CAGR of 5.4% between 2015 and 2019. Between December 2022 and the end of November 2023, this city pair saw an average of 2 250 passengers each way per month. Traffic between Brussels and Cape Town has swiftly recovered from the pandemic, with levels observed in the period from December 2022 to November 2023 surpassing those of the corresponding period in 2018 and 2019 by more than 30%. Traffic shows a seasonal pattern, with the IATA-summer, which corresponds to the winter-period in Southern Africa, featuring the lowest traffic numbers.

About 200 Belgian companies are present or have branches in South Africa. Many Belgian nationals live and work in South Africa and approximately 10 000 Belgian-born people had emigrated there by 2020¹. Also worth considering in the evaluation of this unserved route is the fact that Brussels serves as the heart of the European Union. Any diplomatic relationships or cooperation between South Africa and the EU naturally converge in Brussels.

Cargo between Belgium and South Africa is understood to hold at least some level of importance. Pharmaceutical products are the top cargo transported from Belgium to South Africa, while South Africa typically exports perishable goods to Belgium.

Considering all the above factors, it makes sense to evaluate a non-stop service between Brussels and Cape Town. Data records indicate that the city pair has not seen any regularly scheduled non-stop service so far.

Part of the traffic growth on the city pair can be credited to Air Belgium's operation on the route from Brussels to Johannesburg, with a tag-end flight to Cape Town. The airline flew this routing twice a week using an A330-900 for almost the entire period from September 2022 to November 2023. It is understood that they did not possess eighth freedom rights between Johannesburg and Cape Town. However, Air Belgium had a partnership with Airlink to extend travel options beyond Johannesburg and Cape Town.

The comparison of the O&D traffic data for Brussels-Cape Town from December 2022 to end November 2023 with the corresponding period in 2018-2019, when Air Belgium had not yet launched the route, reveals a 34% increase in total O&D traffic on the city pair with Air Belgium capturing more than 45% of the total O&D traffic. Part of that growth was captured by Emirates, Ethiopian Airlines and Lufthansa, all of which experienced a traffic growth ranging from 4% to 15% on the city pair during the same timeframe.

CAPE TOWN - BRUSSELS

Interpretation, future projection and opinion (continued)

However, airlines such as British Airways, Turkish Airlines and Qatar Airways experienced a decline in traffic on the city pair during that period. The conclusion drawn is that the Belgian airline enjoyed at least a certain level of preference from traffic originating in Belgium on the route. The airline managed to both stimulate traffic and recapture some connecting traffic from competitors.

South African Airlines has never operated flights to Brussels. However, the airline has historically served destinations in Europe, particularly in Germany and the United Kingdom. As the airline's network to or from Europe has not been reinstated, a non-stop service between Cape Town and Brussels could emerge as an appealing alternative option to restore connectivity between South Africa and Europe to previous levels. In 2023, the number of non-directional flights between South Africa and Europe remained about 3 700 flights below the 14 000 flights recorded in 2019. This translated to a capacity reduction of approximately 925 000 seats in that market. With Air Belgium having decided to change their business model and cease operating scheduled passenger flights, the route is essentially awaiting another operator to step in.

The forecasted captured traffic that results from the methodology described above would be sufficient to operate 4 weekly flights each way with a widebody aircraft in the 250 seats-category (e.g. A330-800) from 2026 onwards, or 3 weekly frequencies with a widebody aircraft in the 280-330 seats-category (e.g. A330-900 or A350-900). These frequencies apply for operations averaged over the calendar year, but could obviously vary in frequency depending on the time of the year and fully in-line with observed seasonal traffic variations.



DURBAN - LONDON

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Durban-London: **163 PPDEW** (Aug. 2019)
- London-Durban: **184 PPDEW** (Jul. 2019)

Average monthly pax

	2019	last 12 months ²
▪ Durban-London:	4 197	2 094
▪ London-Durban:	3 978	2 170

Traffic growth

Pax number growth (CAGR 2015-2019): **8.9 %**

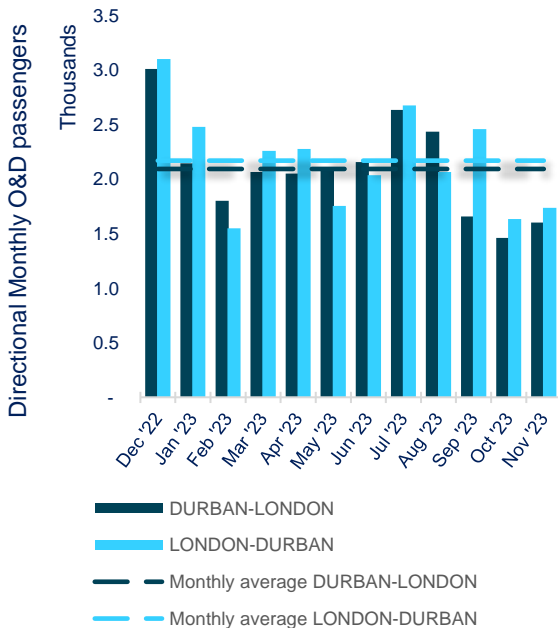
Status of traffic-recovery on the city-pair Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **51 %**

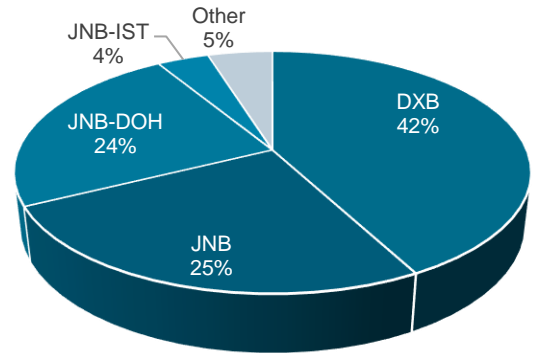
Traffic seasonality²

Max. deltas vs. average monthly traffic:

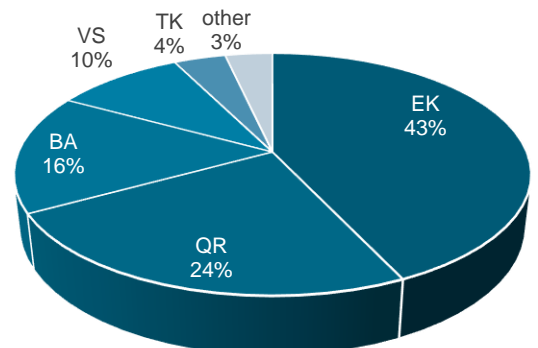
- + 44%
- 30%



Current primary transit-hubs²



Carriers breakdown²



Notes 1: period from January 2015 up to and including November 2023
 2: period from December 2022 up to and including November 2023

DURBAN - LONDON

Interpretation, future projection and opinion

Durban – London is a route that British Airways launched at the end of 2018. It was an important development, simplifying access to Durban and reinforcing it as both a business destination and a conveniently accessible tourist destination. Industry insiders in South Africa’s air transport sector at the time viewed it as an important milestone. The non-stop service was notable for bypassing Johannesburg as a hub in Southern Africa, possibly demonstrating the start of a new trend of airlines flying long-haul non-stop from major global hubs like London Heathrow to secondary destinations in Southern Africa. Previously, passengers typically connected via Johannesburg.

British Airways operated the route primarily with the 787-8 and infrequently the 787-9, each featuring a total capacity of approximately 215 seats, be it in different cabin configurations and with different numbers of premium seats. The route averaged about 3 flights per week each way. The non-stop service stimulated traffic, attaining a total average of about 8 200 non-directional O&D passengers per month during the first year of its operations. That marked a growth of over 30% from the previous year’s average of 6 200 passengers. The non-stop flights were suspended in March 2020 because of the pandemic.

A first attempt to relaunch the non-stop flights was made during the IATA-winter of 2021-2022, corresponding to Southern Africa’s summer period. Nevertheless, the route got suspended again in March 2022 and has not come back since then. O&D traffic on the city pair has not returned to pre-pandemic levels yet. For the period under review, only about half of the previously known traffic levels were observed. A list of factors may help explain this situation. The prolonged absence of the non-stop service may well be part of the list.

Even if the obvious routing for the city pair would be by connecting through Johannesburg or even through Cape Town, the itineraries selected by travelers during the reference period of the study show that Emirates and Qatar Airways attracted the largest part of the traffic. These travelers opted to connect through Middle Eastern hubs, resulting in considerable detours compared to the shorter itineraries via Johannesburg or Cape Town. In the reference period, Emirates operated flights to Durban from their Dubai-hub, while Qatar Airways included Durban as a tag end flight on their Doha-Johannesburg service. Travelers flying with British Airways or Virgin Atlantic had to use another carrier for the flights between Johannesburg or Cape Town and Durban, obviously covered by a cooperation agreement between that carrier and British Airways or Virgin Atlantic respectively. However, does this suggest that travelers generally prefer flying with a single airline or brand for the entire journey from origin to destination?

Based on the methodology described above and starting from the observed unrecovered low traffic levels during the reference period for this study, the analysis suggests that the route could become viable with the forecasted traffic for 2026. Frequencies up to 4 weekly flights each way could be achieved with smaller widebody aircraft featuring a capacity of about 250 seats (A330-200/-800). Larger capacity widebody aircraft, featuring seat counts between 280 and 330 seats (A330-300/-900 or A350-900) could still achieve the target load factors based on the methodology applied in this study, when flying 3 weekly flights both ways.

NAIROBI - WASHINGTON

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Nairobi-Washington: **106 PPDEW** (Aug. 2018)
- Washington-Nairobi: **99 PPDEW** (Aug. 2018)

Average monthly pax

	2019	last 12 months ²
▪ Nairobi-Washington:	2 266	1 934
▪ Washington-Nairobi :	2 302	2 017

Traffic growth

Pax number growth (CAGR 2015-2019): **9.6 %**

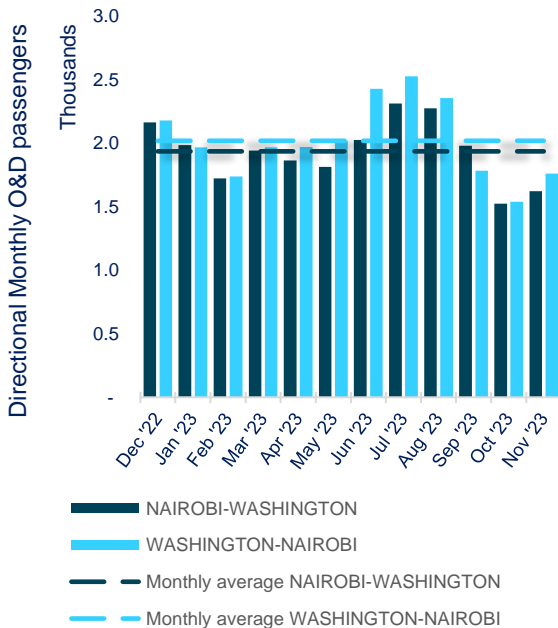
Status of traffic-recovery on the city-pair Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **87 %**

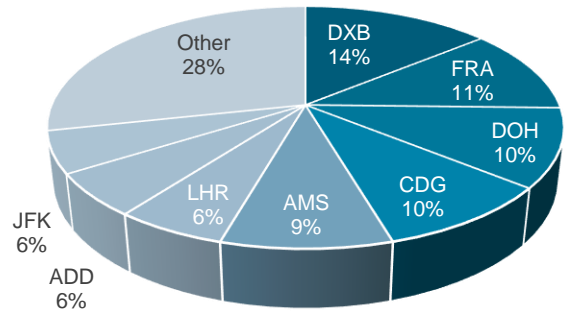
Traffic seasonality²

Max. deltas vs. average monthly traffic:

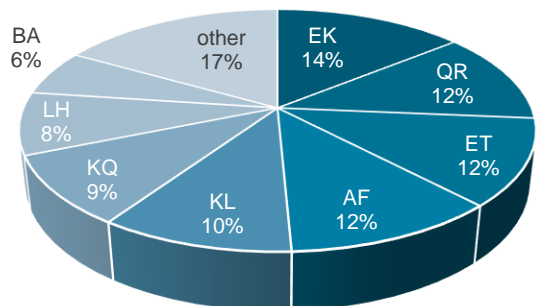
- + 25%
- 24%



Current primary transit-hubs²



Carriers breakdown²



Notes 1: period from January 2015 up to and including November 2023
 2: period from December 2022 up to and including November 2023

NAIROBI - WASHINGTON

Interpretation, future projection and opinion

While Nairobi – Washington may be the last unserved route to or from Africa in this report, it is certainly not the least interesting. It is a challenging route, one that, when operated, will push the most advanced aircraft existing today to the limits of their capabilities. The route's length is not the primary concern, even if it is the longest unserved route covered in this report. Nairobi's airport, however, sits at a relatively high altitude of 1 624 meter. High temperatures are common, and the combination of both factors presents a challenge for the take-off of the flight. The extended distance to be traveled alongside the take-off conditions from Nairobi airport presents an intriguing case for aircraft performance engineers to work on.

There are several reasons why the route merits consideration for a non-stop service from a business potential perspective.

Nairobi and Washington are both capitals of their respective countries. Both cities are political centers and diplomatic hubs in their respective region. Both cities host international organisations that are important for Africa. For instance, Washington hosts organisations like the World Bank Group and the International Monetary Fund (IMF). In turn, Nairobi hosts the United Nations' regional headquarters for Africa and the World Food Programme's regional office. Both Nairobi and Washington are centers for international development organisations and aid agencies. They are home to NGOs involved in global development and humanitarian efforts.

The United States is the world's largest economy today and is forecasted to grow by 25% by 2035, while Nairobi is a key economic hub in East Africa. A non-stop service between both therefore seems obvious.

There is no need to elaborate extensively on the tourism development potential that Kenya possesses. Just like people across the globe, Americans like to travel to Kenya to visit its national parks and reserves, engage in safaris, discover local cultures, relax on Mombasa's beaches, etc.

All in all, travel between the two cities facilitates diplomatic engagements, official meetings and collaboration between governments. It enables coordination, project implementation, and partnership-building in various programmes, events and situations. Non-stop flights between both cities would only simplify this travel and it could stimulate business and tourism beyond existing levels.

There is more. Apart from Kenya Airways' non-stop service from Nairobi to New York, no non-stop flights exist today between the entire subregion of East Africa and North America in the direction to North America. Ethiopian Airlines fly several routes from Addis Ababa to North America, but each of them include an intermediate stop – be it in Europe or West Africa – on the way to North America. With Addis Ababa's airport elevation of 2 334 meters above sea level, take-off limitations are even more severe than for Nairobi. Today's situation is that aircraft face performance limitations on these routes, necessitating a technical stop on the way to North America. Return flights are not subject to the same take-off restrictions, making non-stop services from North-America to East Africa more common.

NAIROBI - WASHINGTON

Interpretation, future projection and opinion (continued)

The attractiveness of a non-stop service from East Africa to North America is illustrated by the popularity of Kenya Airways' non-stop flights between Nairobi and New York. These flights have a reputation in the industry for achieving favourable passenger load factors. Kenya Airways launched the non-stop service on the route in October 2018 and gradually built up frequencies to a daily service in both directions by August 2019. After a reduction of frequencies and even a temporary complete service interruption during the pandemic, the non-stop service was relaunched in October 2020. By July 2023, the service had returned to a daily service in both directions and available schedule data for 2024 show Kenya Airways' intention to further increase frequencies to 10 flights per week in each direction by August 2024.

From this perspective, the conclusion can be made that a new non-stop service between Nairobi and Washington would only be a further improvement of the connectivity between East Africa and North America and the success of such service appears at least promising.

O&D traffic on the Nairobi-Washington city pair grew with a CAGR close to 10% during the period from 2015 to 2019. The number of non-directional O&D passengers travelling on the route averaged at around 3 950 per month during the period from December 2022 to November 2023. This average is based on full year data. The route experiences seasonal traffic variations, with the peak period from June to August averaging around 4 600 non-directional O&D passengers per month. Many routes to or from Africa that do not reach this level of O&D traffic are in operation today.

The route has not fully recovered from the pandemic yet, but traffic data available up to the end of November 2023 clearly show an upward trend, with nearly 90% of the pre-pandemic level already attained. The launch of a non-stop service would only accelerate this trend to recovery and make traffic grow well beyond the pre-pandemic levels.

Traffic projections to 2026, topped up with some conservative stimulation and connecting traffic as outlined in the methodology-chapter of this report, lead to the conclusion that a non-stop service could be feasible starting with 3 flights per week each way, using e.g. the A330-800 or A350-900. Advanced optimization techniques could result in obtaining favourable payloads on the route to North America, despite the challenges described above. Ultimately, an appealing customised business case may well emerge from the evaluation.

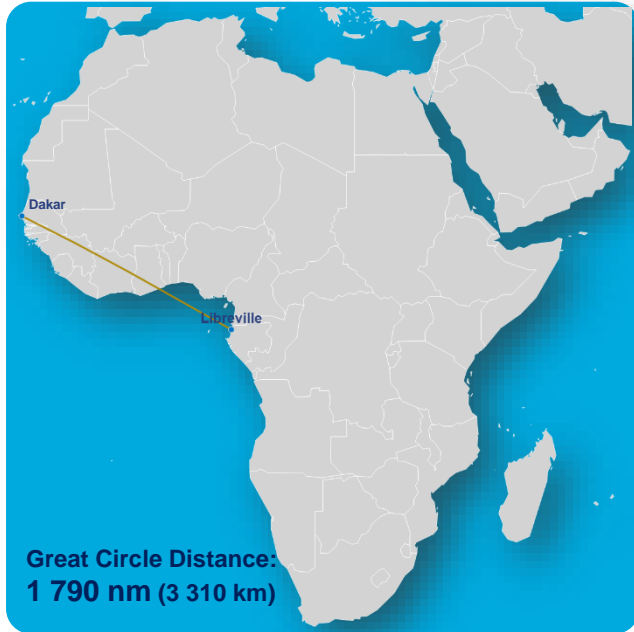




Part III
Unserved routes within
Africa's sub-Saharan region

DAKAR - LIBREVILLE

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Dakar-Libreville: **405 PPWEW** (Aug. 2022)
- Libreville-Dakar: **477 PPWEW** (Oct. 2018)

Average monthly pax

	2019	last 12 months ²
▪ Dakar-Libreville:	1 192	1 301
▪ Libreville-Dakar :	1 396	1 471

Traffic growth

Pax number growth (CAGR 2015-2019): **11.8 %**

Status of traffic-recovery on the city-pair

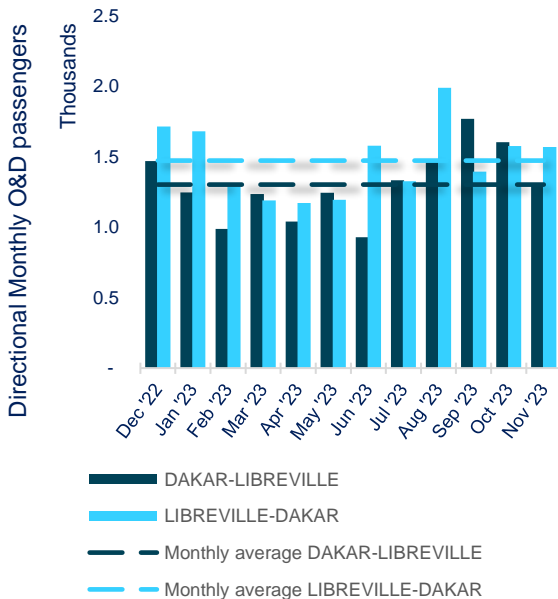
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **105 %**

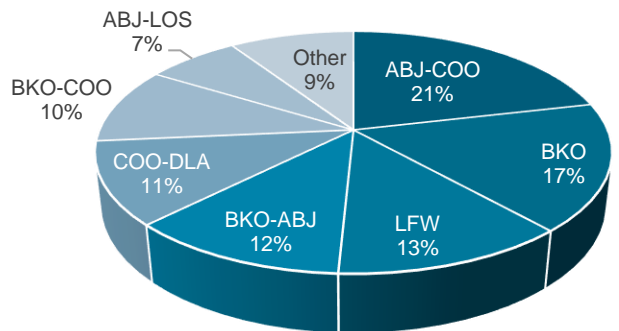
Traffic seasonality²

Max. deltas vs. average monthly traffic:

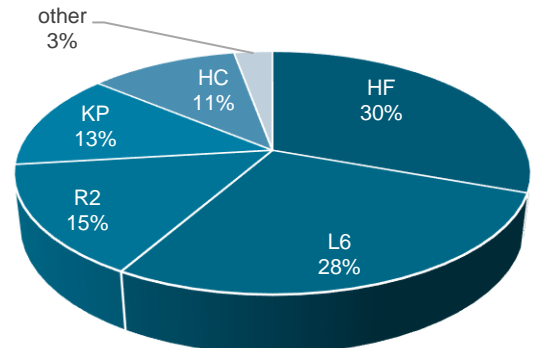
- + **36%**
- **29%**



Current primary transit-hubs²



Carriers breakdown²



Notes

¹: period from January 2015 up to and including November 2023
²: period from December 2022 up to and including November 2023

DAKAR - LIBREVILLE

Interpretation, future projection and opinion

Traffic levels on the top unserved intra-African regional routes are substantially lower than those observed on unserved routes to or from Africa. Nevertheless, it is still worthwhile to examine these unserved intra-African city pairs and assess their potential to flourish as non-stop service in the future.

Starting from the recorded O&D traffic, Dakar (Senegal) – Libreville (Gabon) emerges as the most important unserved intra-African route for the assessed period. Both cities are the capital of their respective countries, situated on the coastline, and both have a deep-sea port. They are centers for business, trade, finance and are important gateways, not only for their respective nations but equally so for their entire sub-region, including some landlocked countries inside the continent. Governments of both countries have the objective to develop economic activity, attract more (foreign) investment and anchor both cities into both their regional and the global economy.

The evaluated period did not see a non-stop service connecting the two cities. Historical schedule-data show that a non-stop service on the route was offered by Air Gabon for a short period back in 2006 and more recently also by Mauritania airlines. The latter airline operated non-stop flights between Dakar and Libreville from February to the end of July of 2022, primarily using the 737-800. Data show that the frequency of service was a single flight per week only. Since then, no regularly scheduled flights have been recorded.

O&D traffic has grown with a CAGR close to 12% between 2015 and 2019. The route has fully recovered and O&D traffic was 5% higher for the period in review compared to the same period before the pandemic. On average, about 320 passengers travel on the O&D each way every week.

Even if the above-mentioned 12% CAGR seems important, euphoria would be inappropriate. Growth rates quickly become significant when the baseline numbers are modest. The potential for the non-stop service originates elsewhere.

Upon reviewing the transit points of the connecting traffic, it appears that more than 60% of all O&D traffic between the two cities travels on itineraries with two transit stops. 30% of the travelers still makes one stop on the trip, be it in Lomé or Bamako. A regularly scheduled (rather frequent) non-stop service between Dakar and Libreville could significantly improve the quality of service and the convenience of the trip. It could attract important parts of the existing traffic and it could equally significantly stimulate O&D traffic.

Single aisle aircraft with a capacity of 100 to 140 seats and featuring the range capability would be well-suited to perform the service. Projections based on the assumptions of this study show that about 4 directional flights per week could be attained when starting-up the service with such aircraft.

ABIDJAN - DOUALA

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Abidjan-Douala: **640 PPWEW** (Apr. 2019)
- Douala-Abidjan: **659 PPWEW** (Apr. 2019)

Average monthly pax

	2019	last 12 months ²
Abidjan-Douala:	1 703	1 387
Douala-Abidjan:	1 884	1 363

Traffic growth

Pax number growth (CAGR 2015-2019): **9.8 %**

Status of traffic-recovery on the city-pair

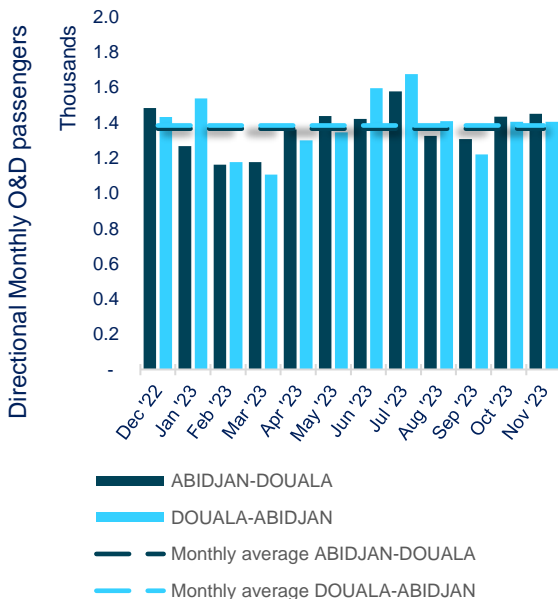
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **75 %**

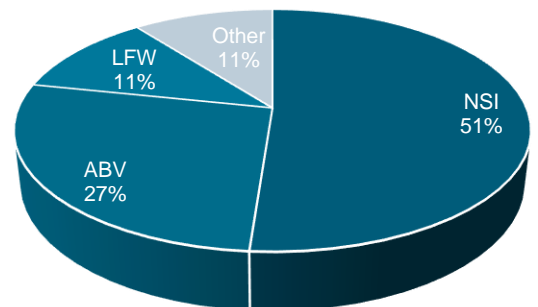
Traffic seasonality²

Max. deltas vs. average monthly traffic:

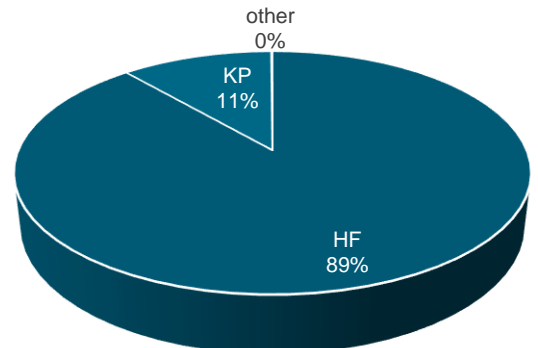
- + 21%
- 20%



Current primary transit-hubs²



Carriers breakdown²



Notes 1: period from January 2015 up to and including November 2023
2: period from December 2022 up to and including November 2023

ABIDJAN - DOUALA

Interpretation, future projection and opinion

The Abidjan (Ivory Coast) – Douala (Cameroon) city pair shares many similarities with the Dakar-Libreville route discussed above. All of them are port-cities, densely populated urban centers, all of them play an important role in trade for their respective nations and all of them make a significant contribution to their respective country's economic activity and GDP.

Observed traffic levels during the studied timeframe are similar to those for the Dakar-Libreville city pair and once again, strong average growth figures have been observed for the period from 2015 to 2019.

However, traffic has not returned to pre-covid levels yet. Recorded O&D traffic for the studied timeframe was 25% lower compared to the same 12 months' period just before the pandemic. The route shows relatively small seasonal variations, especially in comparison with seasonal variations that typically characterize long-haul flights to and from the African continent.

Air Cote d'Ivoire and Asky captured all traffic during the studied timeframe and connected their traffic over Yaoundé (Cameroon), Abuja (Nigeria) or Lomé (Togo). This connection appears to be quite burdensome, considering it is a relatively short distance.

The route was operated as a non-stop service by a number of airlines in the past. Some foreign operators, like Kenya Airways (several years up to march 2009) and Rwandair Express (2017) flew the route as a tag end flight. Even if unconfirmed at the moment this report was compiled, it is highly likely that these operators possessed 5th freedom traffic rights on the route during the period they operated it. Sky Mali is the last operator to have operated on the route. That was in the period at the end of 2020, early 2021. The most frequently used aircraft types on the route have been the Boeing 737-800/-700 or older variants and the Airbus A319. Kenya Airways even flew the service for a while using the 767-300ER. Total seats offered on the route has known ups and downs, with peaks going up as high as 11 800 non-directional seats in March 2017, when Air Cote d'Ivoire, Rwandair Express and Trans Air Congo operated next to each other on the route.

Considering the future projections based on the assumptions outlined above, along with the anticipated captured part of the traffic, the route has the potential to become a viable non-stop route. Single aisle aircraft with a capacity in the range of 100 to 160 seats (e.g. A220s, A319s and even A320s) are expected to obtain good load factors when performing up to 5 directional flights per week as of 2026. Since this intra-regional city pair is less susceptible to seasonal demand fluctuations, the route could maintain a fairly consistent frequency throughout the year.

ABUJA - NAIROBI

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Abuja-Nairobi: **272 PPWEW** (Jun. 2022)
- Nairobi-Abuja: **254 PPWEW** (Jul. 2018)

Average monthly pax

	2019	last 12 months ²
Abuja-Nairobi:	681	827
Nairobi-Abuja :	718	967

Traffic growth

Pax number growth (CAGR 2015-2019): **10.1 %**

Status of traffic-recovery on the city-pair

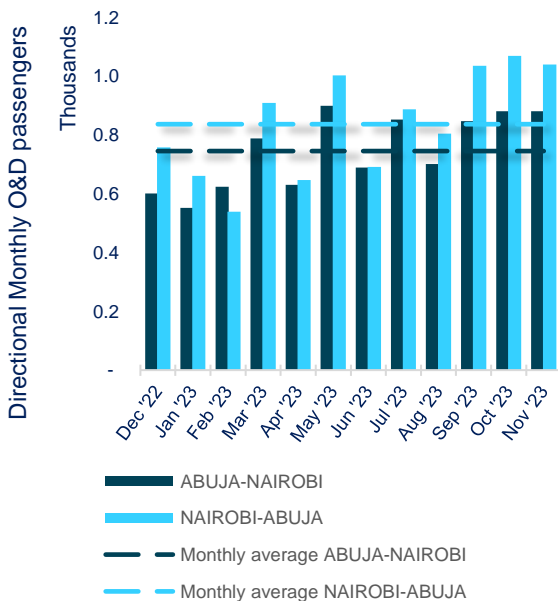
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **114 %**

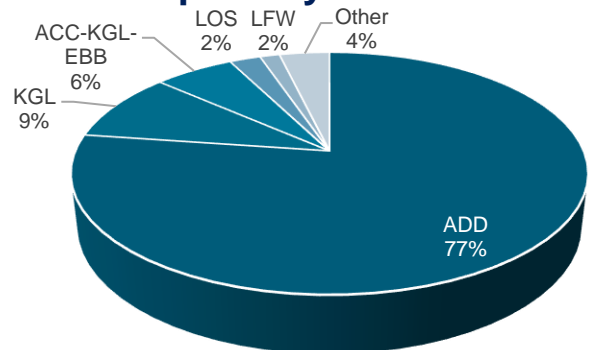
Traffic seasonality²

Max. deltas vs. average monthly traffic:

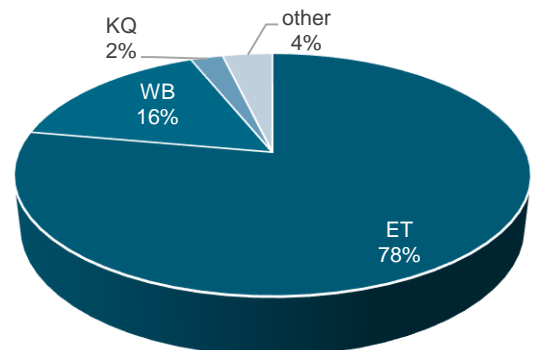
- + **28%**
- **36%**



Current primary transit-hubs²



Carriers breakdown²



Notes 1: period from January 2015 up to and including November 2023
2: period from December 2022 up to and including November 2023

ABUJA - NAIROBI

Interpretation, future projection and opinion

The third intra-African regional route with the potential to achieve and sustain a non-stop service in the future is Abuja (Nigeria) – Nairobi (Kenya).

Both are capital cities and political centers of some of the most important countries and economies in Africa. Nigeria is the largest economy in Africa while Kenya is a major economic hub in East Africa. Their economies rank 1st and 6th in Africa respectively, measured by their 2023 GDP. With one of the fastest growing economies in Africa, especially in the pre-pandemic period, Kenya attained lower-middle income status halfway down the previous decade. Kenya's vision 2030 aims to transform the country into a newly industrialising, middle-income nation that provides a high quality of life to all its citizens in a clean and secure environment. Improving accessibility and connectivity by developing its air transport industry is part of that vision.

Back in April 2023, Kenya and Nigeria formally announced their commitment to deepen diplomatic and trade ties. Kenya and Nigeria already have a long-standing trade relationship. Both countries are members of the African Continental Free Trade Area (AfCFTA) and they agreed to further enhance their mutual relationship towards economic development and trade.

A non-stop air service between Abuja and Nairobi aligns perfectly with that plan, and would also reinforce the already existing direct links between West and East Africa.

The O&D traffic on the Abuja – Nairobi city pair experienced a double-digit CAGR from 2015 to 2019. O&D Traffic has fully recovered and had already surpassed pre-pandemic levels by 14% during the period under review in this study. On average, about 900 passengers traveled between the two cities each way per week in the period from December 2022 to the end November 2023.

Even though established airlines have hubs at the outer ends of the route, Ethiopian Airlines has been capturing the lion's share of the traffic between the two cities, connecting travelers through its hub in Addis Ababa. Rwandair was identified as the second most important player on the O&D. The airline connects travelers on the route, albeit to a lower extent than Ethiopian Airlines, through its hub in Kigali. Introducing a non-stop service would enhance travel convenience and potentially regain a portion of the via-traffic while also stimulating the O&D traffic between the cities. Furthermore, given that both endpoints of the non-stop service are hubs of established airlines, connecting traffic before or beyond the segment between Abuja and Nairobi could also prove to be quite significant, potentially substantially exceeding the assumed 15% as outlined in the study's ground rules.

Kenya Airways is the only operator that has offered a non-stop service on the city pair so far. The airline operated the route using the E190 and 737-800 from June 2014 to November 2016. During that period, Kenya Airways performed close to 12 weekly flights between Kenya and Nigeria, connecting Nairobi to both Lagos and Abuja. Following the pandemic, by the end of 2023, Kenya Airways has restored its service between the two countries to a daily flight. However, the airline now exclusively operates the flight between Nairobi and Lagos. The 787-8 is used for approximately 50% of the flights, with the remaining 50% performed with the 737-800.

ABUJA - NAIROBI

Interpretation, future projection and opinion (continued)

Considering the future projections based on the outlined assumptions, as well as the expected captured portion of the traffic, the route between Abuja and Nairobi has the potential to evolve into a viable non-stop route. Small single aisle aircraft with a capacity in the range of 100 to 140 seats (e.g. A220s, A319s) are expected to obtain good load factors when performing 3 directional flights per week as of 2026.



CAPE TOWN - LAGOS

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Cape Town-Lagos: **427 PPWEW** (Mar. 2015)
- Lagos-Cape Town: **499 PPWEW** (Mar. 2015)

Average monthly pax

	2019	last 12 months ²
▪ Cape Town-Lagos :	1 009	693
▪ Lagos-Cape Town:	1 039	732

Traffic growth

Pax number growth (CAGR 2015-2019): **-7.3 %**

Status of traffic-recovery on the city-pair

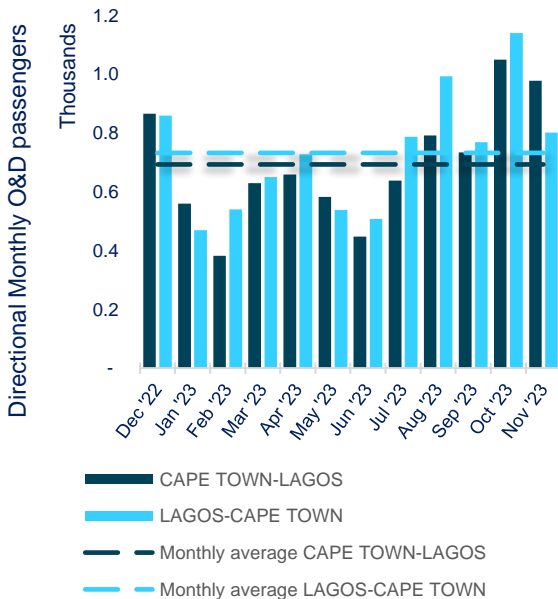
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **67 %**

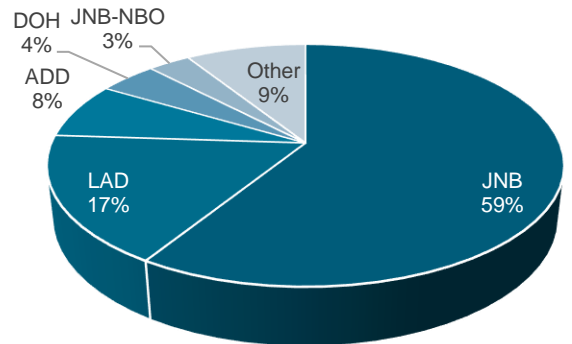
Traffic seasonality²

Max. deltas vs. average monthly traffic:

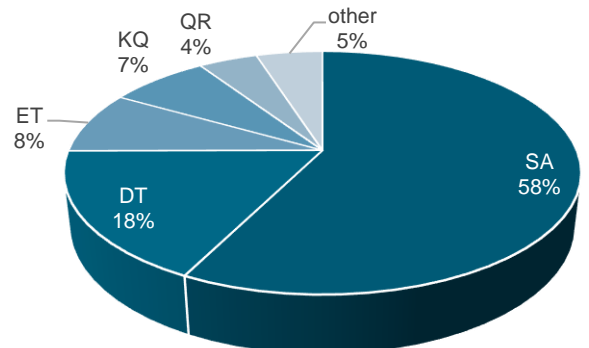
- + 56%
- 45%



Current primary transit-hubs²



Carriers breakdown²



Notes

¹: period from January 2015 up to and including November 2023
²: period from December 2022 up to and including November 2023

CAPE TOWN - LAGOS

Interpretation, future projection and opinion

Given the pivotal roles played by both Lagos (Nigeria) and Cape Town (South Africa) within their respective countries and across the African continent, the establishment of a non-stop service between these cities emerges as a sensible case. Lagos, Nigeria's largest city and economic powerhouse, and Cape Town, South Africa's tourism and cultural capital, clearly possess complementary attributes that can mutually enrich each other.

Whereas Cape Town has this reputation of being South Africa's tourism and cultural capital, recent developments show that the city's focus is broadening. It is experiencing an upward economic development trend, marked by companies relocating their business operations there and new companies deciding to set up offices in the area. Industries such as trade, manufacturing and communications show promising potential for future growth within the city and its surrounding region. As these industrial activities in Cape Town and Lagos have synergies, connecting Cape Town with Lagos via a non-stop flight could accelerate the growing momentum of engagement, cooperation and exchange.

Despite the significance of both cities, there is currently no non-stop flight between them. Historical schedule data indicate that such a service has never existed. Moreover, there is no direct air service connecting Cape Town with the entire subregion of West Africa. Throughout the whole period from January 2023 up to the end of the IATA-summer in 2024, the only way to travel between Cape Town and West Africa was / is by transiting in Johannesburg or Luanda, or by making long detours to connect over Addis Ababa or even the Middle East. Last but not least, when seeking non-stop travel from South Africa to West Africa, only two entry points are available: Accra and Lagos. Both cities are served from Johannesburg, with Accra being served by South African Airways only. In this context, and in order to increase choice for the traveler, it is worth considering the development of a new non-stop service connecting Cape Town and Lagos.

Cape Town has gained recognition as a destination by numerous airlines, evidenced by both the launch of several prominent routes in recent years and the increase in number of flights on a number of destinations. Speaking examples are Delta Air Lines now operating year-round non-stop trans-Atlantic flights from Atlanta and United Airlines offering non-stop flights to Cape Town from New York and Washington. Cape Town is poised to assume an increasingly pivotal role as an entry point to Southern Africa with a gradually increasing connectivity. Expanding on this notion, the introduction of a non-stop flight between Cape Town and Lagos could reinforce this momentum. Moreover, it would facilitate easier travel to other destinations in West Africa, such as Accra or Abidjan, be it with a transit in Lagos.

The O&D traffic on the city-pair experienced a significant hit due to the pandemic and traffic has not fully returned yet. For the period under review, 30% of the pre-pandemic traffic was still missing. Historical data actually show a decline in traffic between South Africa and Nigeria, starting from 2017. Averaged over the period from 2015 to 2019, traffic shrunk at a rate of about 7% per year. Further analysis shows that this effect goes hand in hand with Arik Air halting their operations between Nigeria and South Africa from 2017 and SAA both reducing frequency of service on the route between Johannesburg and Lagos and suspending their operations between Johannesburg and Abuja.

CAPE TOWN - LAGOS

Interpretation, future projection and opinion (continued)

Since the pandemic, SAA recommenced operations between Johannesburg and Lagos, and Air Peace also became active on that route. Nevertheless, frequencies of services remain below pre-pandemic levels and is certainly still lower than the service levels seen in 2015.

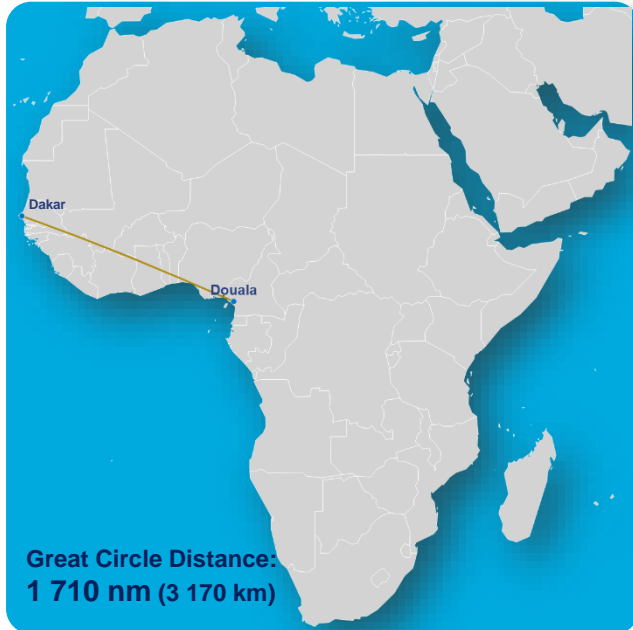
The launch of the non-stop service between Cape Town and Lagos would clearly provide new options for travelers to travel between South Africa and Nigeria, and more broadly between Southern Africa and West Africa. Combining all these elements, a strong traffic stimulation-effect could even be expected.

The specific challenge for the route is that, even with the forecasted captured O&D traffic showing potential, the volume of traffic is not enormous. Stimulating the traffic will have an important effect. The effectiveness of this traffic stimulation will largely hinge on how quickly an acceptable frequency of service can be attained. Starting operations with a small single aisle aircraft therefore seems the obvious choice. Nevertheless, a second specific challenge for the route is that it is particularly long. The A220 is the aircraft type that shows promising potential on the route. It has the ideal capacity, has the range capability, offers the right spacious cabin comfort for a rather long flight and has appealing operating economics. All these ingredients combined can make the non-stop service an appealing option for travelers and particularly a low-risk and viable endeavor for the airline launching the route.



DAKAR - DOUALA

Data sources: Ref. Chapter "Methodology and Data Sources"



Traffic data

Max observed monthly traffic¹

- Dakar-Douala: **229 PPWEW** (Dec. 2018)
- Douala-Dakar: **248 PPWEW** (Dec. 2017)

Average monthly pax

	2019	last 12 months ²
▪ Dakar-Douala:	601	676
▪ Douala-Dakar:	646	685

Traffic growth

Pax number growth (CAGR 2015-2019): **8.2 %**

Status of traffic-recovery on the city-pair

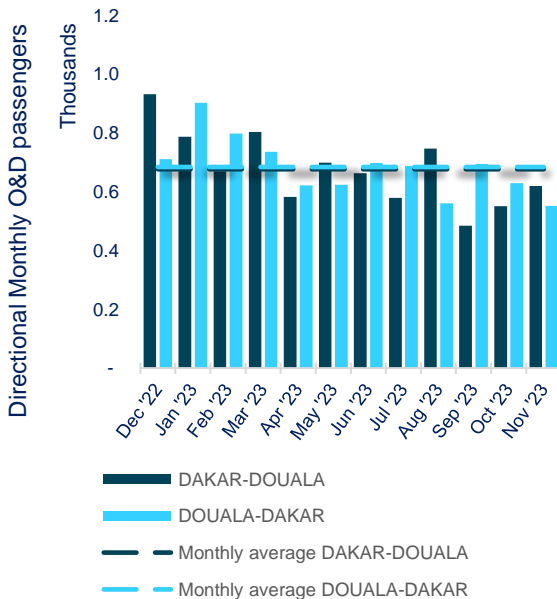
Total non-directional O&D Pax

- Period from Dec. 2018 to Nov. 2019: Datum
- Period from Dec. 2022 to Nov. 2023: **105 %**

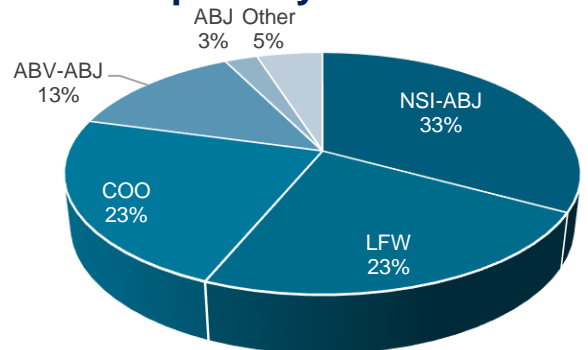
Traffic seasonality²

Max. deltas vs. average monthly traffic:

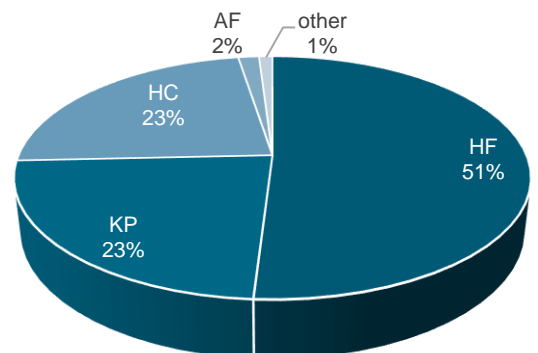
- + **38%**
- **28%**



Current primary transit-hubs²



Carriers breakdown²



Notes 1: period from January 2015 up to and including November 2023
 2: period from December 2022 up to and including November 2023

DAKAR - DOUALA

Interpretation, future projection and opinion

Both Dakar (Senegal) and Douala (Cameroon) have been addressed as destinations in the description of the other intra-African routes above. Although the recorded traffic levels on this route may be lower compared to those on the routes mentioned earlier, it remains worthwhile to analyse this particular route.

Globally seen and with the exception of the pandemic, average traffic levels between both cities have been steadily growing since the start of the evaluation-period in 2015. O&D traffic on the city pair grew with a CAGR of 8% in the period from 2015 to 2019. The route has fully recovered and traffic was 5% higher for the period under review compared to the same period before the pandemic. On average, approximately 160 passengers travelled on the O&D each way every week during the last 12 months ending in November 2023. While the demand may not be excessive, the consistent growth trajectory during the 5 years before the pandemic and the quick recovery after the pandemic are positive indicators.

OAG data reveals that there has been only a brief period of non-stop flights on this route, dating back to 2014. To date, Gambia Bird, the airline that was founded in 2012 as a partnership between the government of Gambia and the now-defunct German airline Germania, stands as the sole airline to have provided a non-stop service on this city pair so far. The airline deployed a 150-seater A319 on the route and performed 2 flights per week. Upon conducting a more thorough examination of historical traffic data, it becomes apparent that traffic got stimulated during the period of operation. Where monthly non-directional O&D traffic numbers had averaged between 570 and 1 800 passengers in the 3 years before Gambia's bird operations, these numbers averaged between 1 620 and 2 330 during the time the airline performed the non-stop service.

About 45% of the traffic recorded during the 12 months ending at the end of November 2023 traveled on the city pair on a trajectory with 2 transit-stops. Most of these passengers flew with Air Côte d'Ivoire via Abidjan and a second transit in Yaounde or Abuja. The convenience of a non-stop service on the route could lead to the recapture of a substantial portion of this via-traffic, and the stimulation-effect, as previously observed during Gambia Bird's operations on the route, could readily be replicated.

Traffic projections to 2026, topped up with some stimulation and connecting traffic as outlined in the paragraph addressing the methodology of this study, lead to the conclusion that a non-stop service could be feasible with up to 3 flights per week to start with, using a single aisle aircraft with a capacity in the range of 100 to 120 seats.



**From short-haul to ultra long range,
every route has its Airbus aircraft**

AIRBUS



A220-100



A220-300

	A220-100	A220-300
Maximum seating	135	160
Typical cabin configuration	100 - 120	120 - 150
Range	3 600 nm 6 700 km	3 400 nm 6 300 km
Powerplants	Pratt & Whitney PW1500G	



A319neo



A320neo



A321neo



A321XLR

	A319neo	A320neo	A321neo	A321XLR
Maximum seating	160	194	244	244
Typical cabin configuration	120 - 150	150 - 180	180 - 220	180 - 220
Range	3 700 nm 6 850 km	3 450 nm 6 390 km	4 000 nm 7 400 km	4 700 nm 8 700 km
Powerplants	CFMI Leap-1A or Pratt & Whitney PW1100G			



A330-800



A330-900

	A330-800	A330-900
Maximum seating	406	465
Typical cabin configuration	220 - 260	260 - 300
Range	8 150 nm 15 100 km	7 200 nm 13 300 km
Powerplants	RR Trent 7000	



A350-900



A350-1000



A350F

	A350-900	A350-1000	A350F
Maximum seating / Payload	440	480	111t
Typical cabin configuration	300 - 350	350 - 410	-
Range	8 400 nm 15 500 km	8 700 nm 16 100 km	4 700 nm 8 700 km
Powerplants	RR Trent XWB-84	RR Trent XWB-97	RR Trent XWB-97

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