



# Opening Up Aviation Services in Africa

## **Phase I Review Report**

**Liberalization Policies & Implementation, Demand & Supply Dynamics, Hubs, Fares/Taxes/Fees & Charges**

Prepared for:

Infrastructure Consortium for Africa (ICA)  
C/O African Development Bank  
15 Avenue de Ghana  
BP 323, 1002 Tunis Belvédère  
Tunisia  
[www.icafrica.org](http://www.icafrica.org)  
[www.afdb.org](http://www.afdb.org)

Prepared by:

Steer Davies Gleeve  
28 – 32 Upper Ground  
London  
SE1 9PD  
[www.steerdaviesgleave.com](http://www.steerdaviesgleave.com)



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## Executive Summary

### Introduction

1. The World Bank's Africa Infrastructure Country Diagnostics (AICD) study<sup>1</sup> provides analysis of infrastructure gaps, including for aviation, where lack of airline competition and the development of regional airport hubs are noted as important constraints. The Programme for Infrastructure Development in Africa (PIDA), a continent wide programme, builds on this analysis and has identified a number of priority projects (PIDA Priority Action Plan -PAP)<sup>2</sup> which, if implemented would help interconnect, integrate and transform the continent. These include a number of projects that relate to the aviation sector.
2. A recent study commissioned by the Infrastructure Consortium for Africa (ICA) Transport Sector Platform<sup>3</sup> highlighted both the potential for private sector participation in Africa, as well as a number of issues that constrain or discourage involvement.
3. This study aims to build on this foundation work and assist African stakeholders in addressing the next steps in promoting efficient African aviation services. The overall objective is to contribute to addressing the barriers to the expansion of effective aviation services across Africa through analysis and targeted interventions in support of relevant PIDA - PAP projects. Specifically, the study assesses the Yamoussoukro Decision implementation, and West Africa Air Transport and Central Africa Air Transport Hubs.
4. The study is divided into two phases:
  - Phase 1: Review and Analysis; and
  - Phase 2: Detailed study.
5. Phase 1 included analysis and consultation activities in order to review recent developments, assess the current situation and identify key issues under the two main areas of work:
  - Assistance to implement more fully the Yamoussoukro Decision and address the associated barriers to developing the African airline industry; and
  - Review the case and scope for establishing regional aviation hubs in Western and possibly Central Africa.
6. The output of Phase 1 is this document, the Review Report, which will identify the focus for the Phase 2, which may highlight specific areas for action under one or both of the two main areas of work (Yamoussoukro and regional hubs)

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<sup>1</sup> Africa infrastructure Country Diagnostics(AICD) study- Africa's Infrastructure: A Time for Transformation; World Bank et al

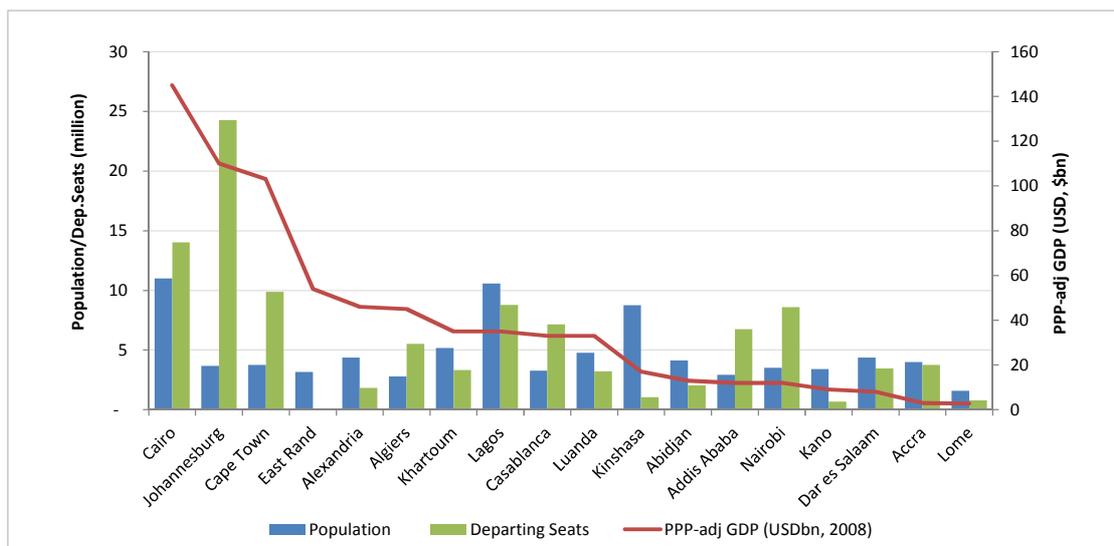
<sup>2</sup> Programme for Infrastructure Development in Africa - Priority Action Plan [www.au-pida.org](http://www.au-pida.org)

<sup>3</sup> Assessment of the potential for private participation in the maritime and air transport sectors in Africa, Steer Davies Gleave, 2012

**Africa: a demographic and economic overview**

7. Africa’s population is growing rapidly. The current high population growth rate began in the second half of the 20th century, when the number of people on the continent almost quadrupled from 230 million to 811 million. By 2010 this number reached one billion and if current demographic trends persist, Africa’s population will be 1.4 billion in 2025 and 1.9 billion by 2050.
8. The size and rate of expansion of a country or city’s population, its wealth and trade activity are all indicators of the level of aviation activity that might be expected. Cities with a large population and GDP and high airline capacity (seats) may indicate a potential location for a viable hub. Our review of population, GDP and departing seats for the top 18 African cities by PPP-adjusted GDP (2008 data) found that Nairobi and Addis Ababa, two existing hubs in Eastern Africa, display a relatively high level of departing seats compared to population levels. Lagos in West Africa has a relatively high population and number of departing seats however does not operate as a hub to the same extent that, say, Lomé in Togo does, despite Lomé having very low levels of departing seats and population. See the Figure E.1 below.

**FIGURE E.1 AFRICAN CITIES: GDP, POPULATION AND DEPARTING SEATS**



Source: OAG, PwC Global city rankings 2008, Steer Davies Gleave analysis

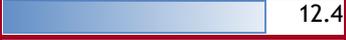
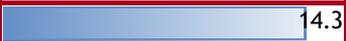
**Overview of air transport policy in selected African States**

**Legal frameworks in place**

9. In order to understand the legal framework and the level of liberalisation on paper, a number of key African States were selected for a desktop review of their aviation policies and legislative context, in order to provide an overall impression of the level of liberalisation of air services in the States considered.
10. The Air Services Agreement Projector (ASAP) is an analytical tool devised by the World Trade Organisation (WTO) that analyses bilateral Air Services Agreements (ASAs) in order to assess their level of liberalisation. The WTO has devised indices that give an indication of the level of liberalisation of any given ASA and of the air transport policy of a particular State. The Weighted Air Liberalization Index (WALI)

is a synthetic measure of the level of liberalisation of the air transport policy of a given Signatory. It is calculated as an average of the indices of all the air service agreements concluded by that Signatory, weighted by the respective traffic they cover and ranges between zero for the most restrictive, and fifty, for the most open. The Standard WALI for selected African states is shown in Table E.1, along with the number of bilateral ASAs for each State. We have also included a number of non-African states as a comparator.

**TABLE E.1 AIR LIBERALISATION INDEX AND NUMBER OF ASAS FOR SELECTED AFRICAN AND NON-AFRICAN STATES**

Signatory	Standard weighting	Number of Bilateral ASAs
	closed <-----> open	
Egypt	 7	41
South Africa	 11.6	54
Nigeria	 12.4	20
Ghana	 12.2	26
Zambia	 10.4	13
Senegal	 9.6	21
Ivory Coast	 6.8	22
Ethiopia	 11.6	18
Kenya	 7.7	27
Tanzania	 11.4	23
Dem Rep Congo	 8.7	12
France	 13.6	63
UK	 14.3	96
Turkey	 11.3	52
Argentina	 16.1	33
Indonesia	 14.3	26

Source: World Trade Organisation, Steer Davies Gleave analysis

- The higher the WALI index, the more open a State's ASAs are. Whilst the non-African countries show more liberalised ASAs, there is not a significant gap between them and the more open African countries, such as Nigeria, Ghana and Ethiopia. It must be noted that, as a multilateral agreement, the Common Aviation Area in Europe is not included in the analysis. If it were, the scores for the UK and France would be significantly higher.

*Relevant international aviation treaties*

- Two key treaties/decisions in Africa relating to liberalisation in the aviation market are the Yamoussoukro Decision and the ECOWAS Treaty.
- The objective of the Yamoussoukro Decision (YD) is defined under Article 2, Scope of Application, as the gradual liberalisation of scheduled and non-scheduled intra-African air transport services. The Abuja Treaty, which formally entered into force on 12 May 1994, is recognised as the legal basis for the YD. Of the 54 African states, 44 have signed and formally ratified the Abuja Treaty and as a result

## Opening up Aviation Services in Africa

became parties to the YD. The other 10 states (Djibouti, Equatorial Guinea, Eritrea, Gabon, Madagascar, Mauritania, Morocco, Somalia, South Africa, and Swaziland) cannot be considered parties.

14. In theory, therefore, signatory States should have a liberalised air transport market in operation both within and between them. In practice, however, this is not the case. All sources confirmed that Yamoussoukro had not been implemented, or had only been partly implemented, and indeed whilst we are aware that Yamoussoukro is cited on occasion in bilateral ASAs, it is not, in practice, taken into account during negotiations for air traffic rights .
15. The 1975 Treaty establishing the Economic Community of West African States (ECOWAS) States (revised in 1993) includes a chapter on co-operation in transport, communications and tourism. We understand that the Fifth Freedom rights granted to airlines as part of this treaty has led to a high concentration of triangular and multi-stop flights being operated in Western and Central Africa compared to the rest of the continent.

### *Stakeholder comments*

16. Stakeholders commented on three key components of the Air Services Agreements: ownership, Fifth Freedom rights and designations of carriers by States.

### *Ownership issues*

17. Issues of ownership are the most significant concern for African States and airlines, particularly fastjet, which is deemed a Tanzanian carrier under Tanzanian law but is not majority owned by African nationals. Under the YD, the carrier must be effectively controlled by the nationals of one, or in the case of multinational airlines, several, state parties. This issue became important immediately when fastjet attempted to launch operations to other countries, for example, South Africa. Whilst under Tanzanian law fastjet is a Tanzanian carrier, other countries do not accept the designation because, under their own national legislation, designation requires ownership (or majority ownership) by Tanzanian nationals. Fastjet has therefore formed local partnerships in each country, such as South Africa, taking minority equity stakes, to obtain the route rights it seeks to operate.
18. It should be noted that this issue would not be resolved even if the YD were fully implemented, since YD includes a requirement for ownership by the relevant country's nationals.
19. The EAC commented that, in their current drafting of region-wide air transport liberalisation legislation, the only outstanding issue is that of ownership. African carriers have significant concerns about well-financed non-African airlines, such as those based in the Gulf, entering and dominating African markets, should ownership restrictions be relaxed.

### *Fifth Freedom rights*

20. The YD allows the multilateral exchange of up to Fifth Freedom air traffic rights between any African YD party state using a simple notification procedure. However a number of stakeholders, including Kenya Airways, reported issues concerning the granting of Fifth Freedom rights. They theorised that other major sub-Saharan African airlines (such as South African Airways, Rwanda Air and Ethiopian Airways) would experience similar issues.

*Designations of carriers by States*

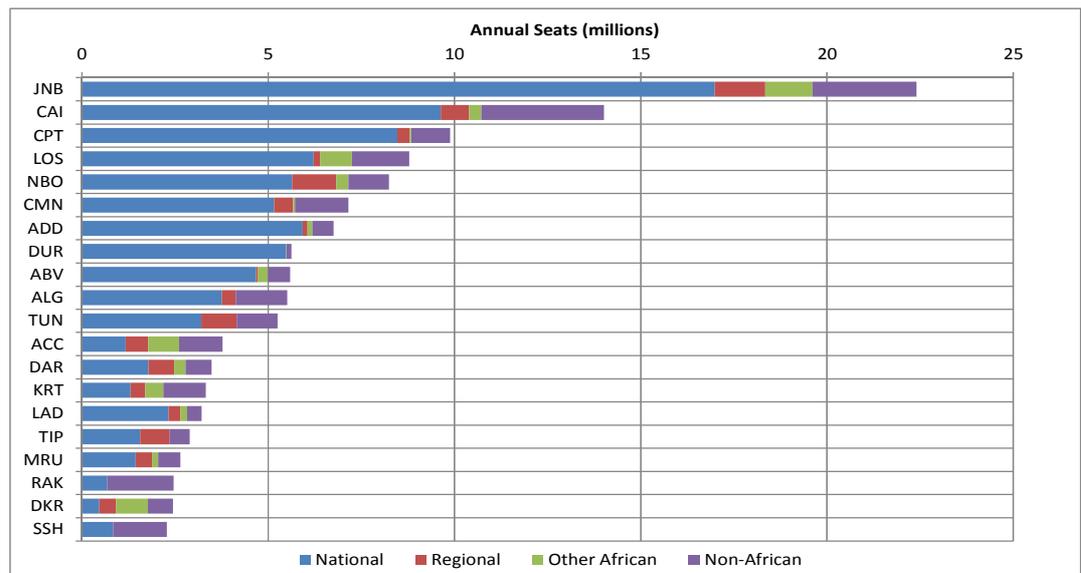
21. Under the YD there is no limit on the number of carriers a State Party can designate, as long as the carriers meet the eligibility requirements. This seems to give rise to the possibility of State A refusing to designate a carrier wishing to commence operations to State B, say in a situation where there is protectionist behaviour towards a state carrier that has already been designated.
22. This demonstrates that, even if the YD were fully implemented, its provisions do not really constitute an Open Skies arrangement, relying very much on governmental involvement and enthusiasm to foster freedom of access for eligible airlines. The evidence shows that such enthusiasm is often absent.

**Aviation in Africa: supply & demand**

*Air Services*

23. The continent’s 20 biggest airports account for nearly 60% of total traffic in Africa over September 2012 - August 2013. With 22.4 million departing seats over the period, Johannesburg airport is the largest in Africa and approximately 60% larger than the next largest airport, Cairo. Cape Town and Durban in South Africa also figure in the top 10, which includes Lagos, Nairobi, Casablanca, Addis Ababa, Abuja and Algiers. The mix of domestic, intra-regional, inter-regional and intercontinental traffic varies greatly.
24. Some interesting variations between airports are observed in the balance of local and reciprocal carriers operating the different types of route. For example, 86% of international capacity at Addis Ababa is provided by Ethiopian carriers compared to 3% for Ghanaian carriers at Accra, while at Johannesburg South African carriers offer a larger proportion of the regional capacity (70%) than reciprocal carriers do; just over half (53%) of the intra-African capacity; and only a small proportion (15%) of intercontinental capacity. See Figure E.2 below.

**FIGURE E.2 TRAFFIC (DEPARTING SEATS) AT TOP 20 AIRPORTS, BY CARRIER**



Source: OAG (Sep 2012-Aug 2013), Steer Davies Gleave analysis. Airport code key below.

## Opening up Aviation Services in Africa

Airport	Airport name	Airport	Airport name
JNB	Johannesburg O.R. Tambo Int	TUN	Tunis
CAI	Cairo	ACC	Accra
CPT	Cape Town	DAR	Dar Es Salaam
LOS	Lagos	KRT	Khartoum
NBO	Nairobi Jomo Kenyatta Int Apt	LAD	Luanda
CMN	Casablanca Mohammed V Apt	TIP	Tripoli
ADD	Addis Ababa	MRU	Mauritius
DUR	Durban King Shaka Int Apt	RAK	Marrakech
ABV	Abuja	DKR	Dakar
ALG	Algiers	SSH	Sharm El-Sheikh

25. Differences are also noted in the extent to which triangular routings are utilised in the four African regions. Triangular routings are found to be more prevalent in Western & Central Africa, reflecting the low levels of traffic, the lack of a dominant airline with a central hub, and the existence of Firth Freedom traffic rights (granted to airlines in the region under the ECOWAS treaty).

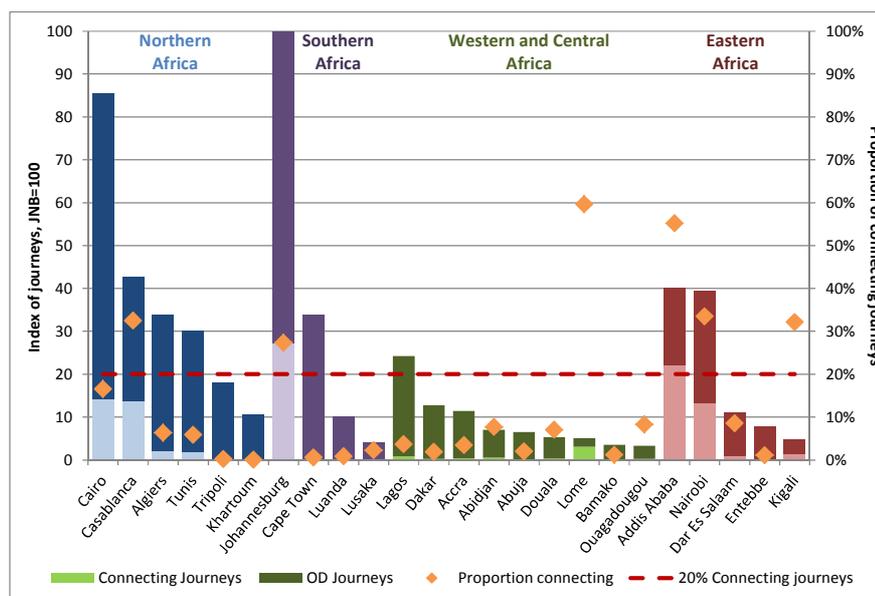
### Gaps in connectivity

26. Analysis of travellers' itineraries demonstrates the low level of connectivity at several important African airports including Entebbe, Accra and Lagos, where a high proportion of indirect journeys (via other airports) are undertaken. The low level of inter-regional connectivity across the continent is also revealed, with as few as 31% of journeys between Northern and Southern Africa found to be direct.

### Hubs

27. The extent to which some of Africa's busiest airports act as hubs for connecting passengers is also examined. As shown in Figure E.3 below Northern, Southern and Eastern Africa all have sizeable airports where the proportion of journeys connecting there approaches or exceeds 20% (Heathrow c.35%, Amsterdam c.50%).

**FIGURE E.3 CONNECTING JOURNEYS AT KEY AFRICAN AIRPORTS**



Source: MIDT, Steer Davies Gleave analysis

28. Cairo, Casablanca, Johannesburg, Addis Ababa and Nairobi all act as hubs. Lomé is the only airport in Western & Central Africa that might be characterised as a hub with 60% of journeys making onward connections. Lomé, however, is small compared with busier airports in the region, like Lagos, and considerably smaller than hubs in other regions.

**Fifth Freedom Rights**

29. The figure below shows the air routes operated under Fifth Freedom rights across Africa (Sept 12 - Aug 13, twice or more a week frequencies, more than 50k two-way seats annually). The colours used signify the number of airlines operating a particular Fifth Freedom route. The map shows that Fifth Freedom rights are exercised widely in Western & Central Africa.

**FIGURE E.4 FIFTH FREEDOM ROUTES IN OPERATION IN AFRICA, 2012**



Source: MIDT, OAG, Steer Davies Gleave analysis

**Fleet**

30. Africa’s low level of connectivity is further revealed in the relatively small size of the African airlines’ fleets. Despite representing 15% of the world’s population, African airlines operate only 5.5% of the world’s commercial passenger and freighter aircraft, thereby having the lowest level of aircraft per capita of any world region. The average age of these fleets is found to be the oldest of any world region (17 years vs 13 years for the global average), and their aircraft mix tends to involve smaller than average aircraft.

**Other barriers to the development of aviation in Africa**

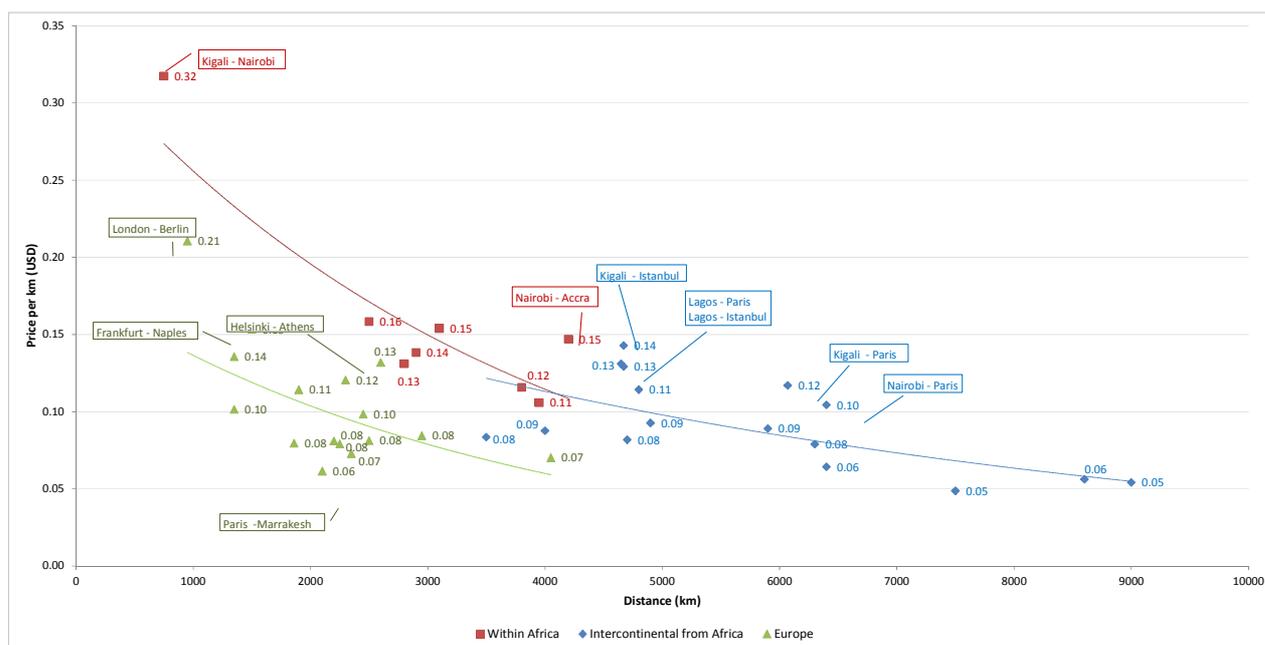
31. There are a number of other barriers to the development of aviation in Africa beyond those already discussed (population, wealth, legislation and policy).

## Opening up Aviation Services in Africa

### Fares

32. A number of stakeholders (including fastjet, the EAC, EAC-CASSOA, Arik Air and Kenya Airways) commented that the level of aviation ticket fares in Africa is higher than seen in other, more liberalised markets, such as the European Union.
33. We have analysed fares from several national and international routes taking in account both direct and stop-over (to a maximum of three) flights. The comparison has been undertaken for 26 routes, using publicly available fares data on kayak.co.uk.
34. For the routes analysed, the average intra-European fare price per km is approximately a third lower than the average intra-African fare. There are a number of drivers of this difference:
  - High levels of taxes, fees and charges in African States, investigated in more detail in the following section, Taxes, fees and charges;
  - Higher operational costs in Africa; and
  - Increased competition as a result of market liberalisation resulting in lower ticket prices in Europe.

**FIGURE E.5 FARES ANALYSIS: PRICE PER KM (USD) VS DISTANCE**



Source: kayak.co.uk, Steer Davies Gleave analysis

### Operating costs

35. Both stakeholders and the literature consulted have commented on the high operational costs that airlines face in Africa.
36. Fastjet confirmed that fuel prices are approximately 20-30% higher in Africa than other parts of the world, and estimated lease costs to be about 20% higher than in Europe. Arik Air also stated that financing for aircraft leases was more expensive in Africa than other parts of the world, particularly in Nigeria, due to the continent or country risk applied by the banks. The high operating costs for

airlines in Africa are also acknowledged by the Economist, Reuters, Financial Times (Mango Aviation Services quote), CAPA and ICAO.

### *Competition*

37. The absence of any serious competition between carriers on many African routes is keeping fares high. Arik Air stated that on some West African routes, loadings of only 50% were required for profit, due to the high fares that they are able to charge.
38. The EAC stated that the region's dependence on bilateral Air Service Agreements (ASAs) meant that the aviation market was still artificially restricted, and that local operators were protected regardless of their performance.
39. In cases where competition has been introduced, it has resulted in lower fares. On the Johannesburg-Lusaka route (for which South African Airways had been the only carrier for over 10 years), designating the South African low-cost carrier, Kulula, as the Zambian carrier reduced fares by 33-38 percent and increased passengers by 38 percent .
40. Fastjet entered the Southern African market in 2012 with a low fares policy. The impact of these low fares on the domestic market has been to increase the size of the market (by 20%, according to some sources including the EAC). Interestingly, fastjet confirmed that 38% of their passengers in their first year of operation in Tanzania are first time flyers.

### *Taxes, Fees and Charges*

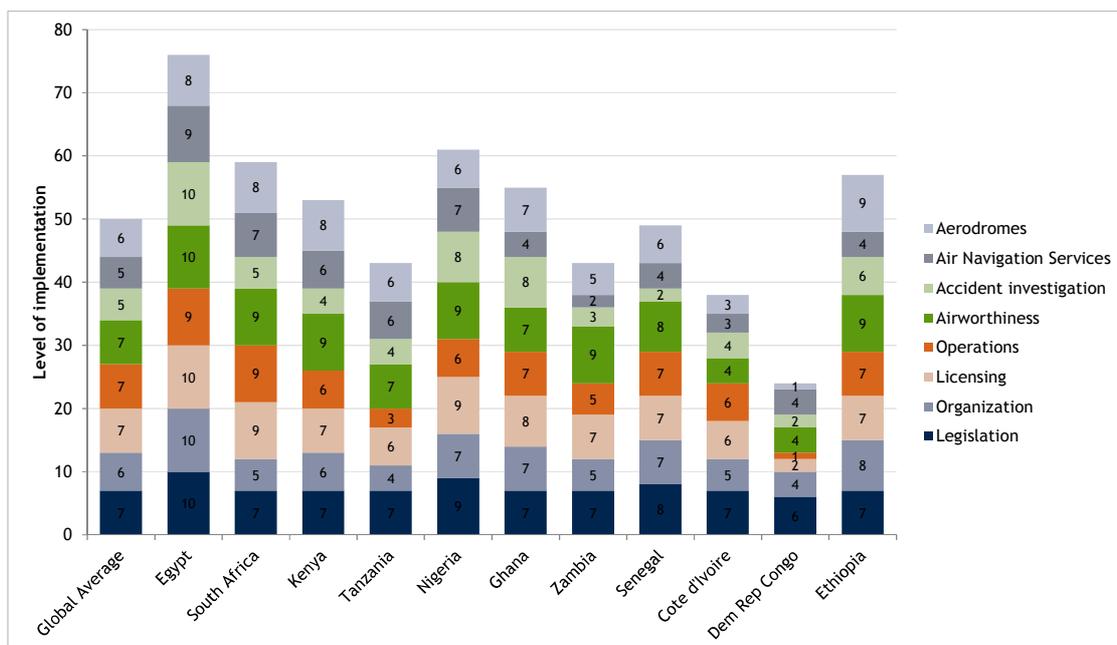
41. Aviation is seen by many African governments as a high revenue industry; aviation tax collection is inexpensive and convenient for Governments to raise funds. Most of the service providers are monopoly providers and without proper regulatory oversight of them coupled with lack of transparency and consultation has resulted in the setting of high Taxes, Fees and Charges (TFCs). The effect of this is market distortion, damage to the commercial viability of carriers, limitation to growth, and diverted finance.
42. Taxes, fares and charges (passenger) at 15 African airports and at 5 other airports around the world, have been analysed for comparison purposes. Looking at the departure tax for regional international flights only (i.e. excluding the security, service, safety and other charges), the average of the African airports reviewed is 30% higher when compared to non-African airports reviewed. Total TFCs at African airports are 8% higher on average than non-African counterparts. This difference becomes more pronounced when living conditions and the economy are factored into account.
43. Concern over high TFCs at African airports and the potential for more airports to reduce TFCs for regional (i.e. intra -African) flights was noted by a number of stakeholders including EAC, EAC-CASSOA and fastjet. The EAC commented that up to 60% of the ticket price is taxes and that tackling the problem of high TFCs would be their next focus, if they succeeded with their current attempts to liberalise the air transport market. The EAC considered that Governments are open to this discussion and that they are considering double tax treaties between States for departure tax.

## Opening up Aviation Services in Africa

### Aviation safety in Africa

44. Safety oversight and consumer confidence in aviation safety in Africa has long been an issue for African airlines. According to a World Bank study, the high accident rate in Sub-Saharan Africa is primarily a result of poor safety standards and lax supervision.
45. The accident rate is the International Civil Aviation Organization's (ICAO) primary indicator of aggregate safety in the global air transport sector. In Africa in 2012, the accident rate (no. of accidents per million departures) is, at 5.3, the highest among all the UN regions. At 3% of all scheduled commercial departures, Africa accounts for the lowest percentage of global traffic volumes, but the highest accident rate.
46. ICAO also audits the implementation of its Standard Recommended Practices and Procedures through its Universal Safety Oversight Audit Programme (USOAP). The aggregate USOAP effective implementation level for Africa is 44% compared to the World average of 61%. Figure E.6 compares the level of implementation of 12 selected African countries to the global average.

**FIGURE E.6 ICAO LEVEL OF USOAP IMPLEMENTATION**



Source: ICAO Safety Audit Information, Steer Davies Gleave analysis

### European Aviation Safety Agency (EASA) activities in Africa

47. Under its mandate for international cooperation, EASA assists States that want to adopt European regulation and/or international safety standards. Its international cooperation for technical activity is focused on supporting the EU Civil Aviation Cooperation projects and the International Cooperation Forum (IFC), working with CAAs and regional organisations to promote air safety.

*Abuja Declaration on aviation safety in Africa*

48. The 2012 Abuja Declaration<sup>4</sup> on aviation safety in Africa includes a Plan of Action and High Level Safety Targets for African Union states. AFCAC has been directed to establish effective monitoring and reporting mechanisms for the Declaration, other resolutions and regional initiatives.

*Stakeholder comments*

49. Aviation safety in Africa is a central concern for stakeholders, although they noted that the situation had been improving.
50. Airlines recognise the paramount importance of safe operations, with some airlines consulted seeing the need to contract their maintenance operations to renowned European firms rather than undertaking it themselves or using a local provider. The increased expense was considered worth it to ensure a link to the respected "brand" and associated safety standards of these established European companies.
51. We understand that the EAC and East Africa Commission Civil Aviation Safety and Security Oversight Agency's (CASSOA) progress in harmonising aviation safety regulations is the most developed of all African Regional Economic Communities. The EAC noted compliance with safety regulations as an issue. CASSOA is not an enforcement agency, but exists to standardise and harmonise aviation regulations and revisions across the EAC States. CASSOA adheres to ICAO standards, and ICAO Annexes 1-19 (excluding Annex 9) have been harmonised, including all security Annexes. The CAAs of EAC Member States are major shareholders.

*Infrastructure*

52. The availability and quality of aviation infrastructure varies across Africa. In the North, East, and South, established hubs such as Cairo, Addis Abba, Nairobi and Johannesburg, provide airlines with sufficient infrastructure to develop their operations from these airports. In Western Africa, whilst some airports (Lagos, Lomé) do provide important connectivity, infrastructure issues prevent their development into fully operational hubs.
53. UKTI reports that there is considerable concern about the financial viability of the development of the Nigerian aviation sector, given the inadequate financial position of the federal and state agencies and the high debt profile of local airlines operators. Safety and security continues to be primary concern at all Nigerian airports. However the Nigerian Government are making efforts to develop Lagos as an international hub in competition with Accra in Ghana, and is implementing a transformational programme that includes airport remodelling and reconstruction.
54. The majority of stakeholders consulted concluded that Lagos, Nigeria, is the most appropriate location for an aviation hub in West Africa, due to the size of the economy, population of Nigeria and level of intercontinental traffic as compared to the other options, Accra (Ghana) and Lomé (Togo). However safety issues and the lack of infrastructure do not make it an immediately attractive choice, and stakeholders acknowledged the attraction of alternatives such as Accra or Lomé for airlines wishing to hub in West Africa.

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<sup>4</sup> Abuja Declaration on Aviation Safety in Africa, African Union, July 2012

## Opening up Aviation Services in Africa

### *Availability of finance*

55. Airlines require access to finance both for working capital and, particularly, to obtain aircraft. With some exceptions, the banking system in much of sub-Saharan Africa is not well capitalised and national banks are not in a strong position to provide the long-term financing required for aircraft purchase or long-term aircraft leases. The small size of most African airlines and the many difficulties in developing and operating airlines in many African countries mean that many financial institutions are unwilling to invest in African airlines or, where they do invest, charge higher rates than would be charged to airlines in other parts of the world.

### *Aircraft leasing*

56. Airfinance Journal reports that the number of African airlines using operating or finance leases is still relatively low, at around 40%. However it is growing as lessors have shown an increasing willingness to lend to African carriers.

### *Export Credit Agencies*

57. As commercial debt has become increasingly difficult for airlines to access, the use of export credit agencies (ECAs), balance sheet funding and in some cases manufacturer provided finance (particularly through leases) has become more common.
58. While commercial banks are generally prepared to offer airlines ECA financing, the standard ECA product guarantees only 85% of the total transaction. This leaves 15% of the financing exposed, which banks are often unwilling to provide alone. Development banks are therefore increasingly being used as a method of bridging this funding gap. Set against this are new rules and legislation brought in by the 2011 Aircraft Sector Understanding (ASU) which requires each ECA to classify its buyers/borrowers into one of eight risk categories, based on their senior unsecured credit ratings.
59. The new ASU raises the export credit premium for all buyers/borrowers, whether airline or lessor. However, the ASU drafters added requirements to reduce this risk. Export credit for higher risk airlines comes with more strings attached which will naturally suppress the availability or at the very least raise the cost of finance to weaker African carriers. The ASU also creates greater incentives to adopt the Cape Town Convention, described below.

### *Cape Town Convention*

60. The Convention on International Interests in Mobile Equipment and its related Aircraft Protocol, collectively called the Cape Town Convention, came into force for aircraft in April 2006. It creates an international registry of security interests in aircraft and spells out creditor rights, thereby eliminating much of the uncertainty about how creditors might fare in a local jurisdiction after an air carrier's default or insolvency. The airlines of any country that adopts the Cape Town Convention, making it the law of their own land, qualify for a discount of up to 10% on their export credit premium.
61. Although the Cape Town Convention therefore appears to provide strong incentives for improvement in local law to the benefit of aircraft lessors and financiers, thereby helping to lower lease cost rates, our discussions with stakeholders have

raised doubts as to its effectiveness in practice. Even in countries where the Convention is in force, it is still necessary for a lessor suffering a default to get a local court to endorse its seizure of the aircraft asset. Therefore the Cape Town Convention, while a helpful measure, does not circumvent the need for a strong legal system to underpin ownership rights.

*Costs of aircraft finance*

62. Our discussions with stakeholders on issues relating to costs of aircraft finance led us to understand that there was an appreciation in the industry that it took longer to reach financial close on an aircraft leasing deal than it would in developed nations and that this ultimately added to the cost of the transaction. It was the strength of local law, and the attitude of local Courts, which determined the effective level of security available to lessors, rather than the country's adherence to the Cape Town Convention itself.
63. In developed nations, dry lease monthly rental rates tend to be below 1% of the aircraft's market value and we understand the larger and more successful African carriers such as Kenyan Airways, Ethiopian Airlines and South African Airways are able to negotiate similar lease rates. However for carriers in less developed aviation markets, or those perceived to be higher risk, the target monthly lease rate would typically be 1.25% to 1.5% of the aircraft's market value with the potential to go as high as 2%. In addition, deposits would tend to be higher in African countries, with an additional two- to three months' payment being held to cover any potential default risk.

**Proposed Phase 2 actions**

64. In order to gain an understanding of the limitations to the expansion of aviation services in Africa, we have undertaken a "root cause" analysis of the difficulties faced by the industry. We have chosen to start from the perspective of air transport users, taking the view that it is the difficulties faced by these end-users which limit the benefits that aviation in Africa can deliver to society. On that basis, we have defined the fundamental problem faced by the industry in Africa as:

■ **'The lack of convenient, safe and affordable air travel'.**

65. Our analysis identifies three main causes for the lack of convenient, safe and affordable air travel:

- An inadequate supply of airline flights and seats;
- High airline fares; and
- Low levels of safety.

***Opportunities for addressing the barriers to aviation***

66. The review of the problems faced by aviation in Africa leads to the identification of potential areas where these may be addressed. These can be categorised into a number of different areas, including:

- Legal and administrative changes;
- Infrastructure enhancements;
- Taxation changes; and

## Opening up Aviation Services in Africa

- Aircraft financing.

### *Proposals for action*

67. There is a broad list of potential opportunities for addressing barriers to growing Africa's aviation industry and this needs to be refined into a more focused list of actions that could be taken forward in Phase 2 of this Study. It should be clear that not all of the potential opportunities may be deliverable and that, in any case, only a few can practically be taken forward within the scope of the Study.
68. We propose to undertake this refinement following feedback from the client and other stakeholders. We suggest some ideas below for practical steps which might be taken forward within the Study to help realise some of the opportunities set out above. These include:
- An analysis of the costs of African airlines: In comparison with airlines in other parts of the world, to identify which elements of airline costs may be inappropriately high (e.g. fuel costs, airport and navigation charges, taxation costs, staff or other operating costs, leasing or aircraft financing charges). This would help to focus attention on the cost areas which most urgently need addressing.
  - Growth implications: An analysis of the potential impact on the growth of aviation of the reduction of administrative barriers or of reductions in airline costs.
  - Working with Regional Economic Communities: By helping to develop common standards and procedures for aviation, following and possibly going beyond the model being implemented by the EAC.
  - Reviewing infrastructure constraints at airports which are credible candidates to act as hubs in West Africa: By identifying targeted interventions for which funding might be provided, potentially with some conditionality on introducing more liberal access to markets (i.e. more effective implementation of Yamoussoukro).
69. We consider that the appropriate approach is likely to include development of analysis demonstrating the benefits removing or reducing barriers to aviation, holding structured discussions with key stakeholders, including national and supra-national authorities, and working with these and other stakeholders to define approaches to work towards implementing the measures needed to achieve this.

# 1 Introduction

## Context

- 1.1 The World Bank's Africa Infrastructure Country Diagnostics (AICD) study<sup>5</sup> provides analysis of infrastructure gaps, including for aviation, where lack of airline competition and the development of regional airport hubs are noted as important constraints. The Programme for Infrastructure Development in Africa (PIDA), a continent wide programme, builds on this analysis and has identified a number of priority projects (PIDA Priority Action Plan -PAP)<sup>6</sup> which, if implemented would help interconnect, integrate and transform the continent. These include a number of projects that relate to the aviation sector.
- 1.2 A recent study commissioned by the Infrastructure Consortium for Africa (ICA) Transport Sector Platform<sup>7</sup> highlighted both the potential for private sector participation in Africa, as well as a number of issues that constrain or discourage involvement. One of the conclusions reached during stakeholder discussions on the study's findings is that a close alignment between further work and PIDA/PAP should be encouraged to facilitate infrastructure investment/development.
- 1.3 This study aims to build on this foundation work and assist African stakeholders in addressing the next steps in promoting efficient African aviation services.

## This study

- 1.4 This study's overall objective is to contribute to addressing the barriers to the expansion of effective aviation services across Africa through analysis and targeted interventions in support of relevant PIDA - PAP projects. Specifically, the study assessed the Yamoussoukro Decision implementation, and West Africa Air Transport and Central Africa Air Transport Hubs.
- 1.5 The Yamoussoukro Declaration of 1998 (formalised as the Yamoussoukro Decision (YD) of the following year and given legal force under the 1991 Abuja Treaty) attempts to liberalise airline route access in intra-African aviation and has only been partially successful.
- 1.6 While there is support for liberalisation of aviation market access through the YD, in practice only partial implementation has been achieved to date across the continent. Market access for airlines is often restricted to promoting national carriers, resulting in inefficient services, low seat utilisation and high air fares. Where the YD has been implemented, this has generally been under the auspices of the regional economic organisations such as the West African Economic and Monetary Union (WAEMU) and the Central African Economic and Monetary Union (CEMAC), but only within the territories of the region, not between different regions. Even within these economic regions, YD implementation has only been

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<sup>5</sup> Africa infrastructure Country Diagnostics(AICD) study- Africa's Infrastructure: A Time for Transformation; World Bank et al

<sup>6</sup> Programme for Infrastructure Development in Africa - Priority Action Plan [www.au-pida.org](http://www.au-pida.org)

<sup>7</sup> Assessment of the potential for private participation in the maritime and air transport sectors in Africa, Steer Davies Gleave, 2012

## Opening up Aviation Services in Africa

partial, with bureaucratic hurdles still in place for airlines wishing to operate new international routes.

- 1.7 While major regional hubs exist in South Africa (Johannesburg), North Africa (Cairo, Casablanca) and East Africa (Nairobi and Addis Ababa), none of the major airports in West or Central Africa (such as Lagos, Abuja, Accra, Abidjan or Kinshasa) fulfil this role, which requires the airport to be a convenient point for connections using airline services with allow passengers to travel to airport destinations which themselves are not directly connected.
- 1.8 This study seeks to assist in addressing the issues discussed above and offer potential solutions to support the relevant PIDA PAP aviation projects.
- 1.9 The study is divided into two phases:
  - Phase 1: Review and Analysis; and
  - Phase 2: Detailed study.
- 1.10 Phase 1 included analysis and consultation activities in order to review recent developments, assess the current situation and identify key issues under the two main areas of work:
  - Assistance to implement more fully the Yamoussoukro Decision and address the associated barriers to developing the African airline industry; and
  - Review the case and scope for establishing regional aviation hubs in Western and possibly Central Africa.
- 1.11 The output of Phase 1 is this document, the Review Report, which will identify the focus for the Phase 2, which may identify specific areas for action under one or both of the two main areas of work (Yamoussoukro and regional hubs).

### This document

- 1.12 This Draft Review Report is a project deliverable from Steer Davies Gleave for the study to assist in the opening up of Aviation Services in Africa.
- 1.13 This Draft Review Report includes a summary of our findings from Phase 1 of the study, identifies options for a focus for Phase 2 and outlines the actions that could be taken during Phase 2. This report includes examples of successes and failures in African aviation, with analysis and drivers for these events. These examples form the basis of the range of potential actions for Phase 2. This report will serve as a basis for discussion during a meeting with the ICA project team which will be held via telephone conference.
- 1.14 The rest of this document is structured as follows:
  - **Chapter 2:** provides an overview of our methodology, including a list of stakeholders consulted to date;
  - **Chapter 3:** provides a brief overview of the African demographic and economic situation in the context of aviation development;
  - **Chapter 4:** provides an overview of the bilateral air services agreements in Africa, the status of implementation of the Yamoussoukro Decision, and a discussion of the key issues surrounding the granting of air transport rights in Africa;

- **Chapter 5:** provides an overview of the air transport market in Africa, using flights and passenger movements data and an analysis of the aircraft fleet in operation in Africa;
- **Chapter 6:** includes an overview of other barriers to the development of the aviation market in Africa, including fares, taxes fees and charges, safety, infrastructure and the availability of finance; and
- **Chapter 7:** summarises the potential actions (proposed by stakeholders or project team) along with an assessment of each and short list of proposals for Phase 2 activities, based on this assessment.

1.15 We also provide two appendices:

- **Appendix A:** Air Services Agreements and aviation policy: State by State analysis for 12 selected States; and
- **Appendix B:** Bibliography.



## 2 Methodology

### Introduction

- 2.1 During Phase I of the Study, we reviewed the available literature, the aviation policies of key African countries, provided an analysis of flight operations and passenger flows to/from and within Africa over the year to August 2013, and consulted with stakeholders including airlines, airports, national and international aviation authorities and financiers.
- 2.2 Our approach to each of these areas is outlined below.

### Literature Review

- 2.3 We built up a bibliography at the start of the project, which was extended through discussions with ICA members and other stakeholders during the course of the study. The reports reviewed include publications by the International Civil Aviation Organisation (ICAO), the World Bank (including Charles Schlumberger's key study<sup>8</sup>), African Union, the Economic Community Of West African States (ECOWAS), the International Finance Corporation (IFC), and Africa Infrastructure Country Diagnostics (AICD).
- 2.4 Sources for news and industry updates include the Economist (Gulliver), the Financial Times, Reuters, Airwise, CAPA Centre for Aviation, Inspiratia and other industry newsletters.
- 2.5 A full Bibliography of the source documents used throughout this study is provided as Appendix B.

### Review of African countries' aviation policies

- 2.6 We reviewed the aviation policies and legislation of a number of key African States in order to understand their legal framework and the level of airline and air route liberalisation in practice. The analysis included an overview of the state of the market (whether market access is regulated/limited), restrictions to airline ownership, and key bilateral Air Service Agreements and their restrictions.

### Schedule and passenger movement analysis

- 2.7 We reviewed both flight schedules and passenger booking data in order to understand the air services currently operated in Africa (we used the Official Airline Guide (OAG) database and Market Intelligence Data Tapes (MIDT) data for passenger journeys to/from/via Africa covering September 2012-August 2013).
- 2.8 We analysed the OAG database, which contains airlines, frequencies and seat capacities of scheduled services across the globe. We have used this data to set out the types of domestic, short-haul (intra-regional) international, inter-regional international and intercontinental services operated by African and other airlines across the continent. As part of this analysis we have examined the application of "triangular" routings which are generally used by airlines when point to point demand is insufficient and in the absence of a suitable hubbing opportunity.

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<sup>8</sup> Open Skies for Africa, World Bank, 2010

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- 2.9 We have also analysed MIDT, which contains passenger booking data collected by Computer Reservations Systems (CRS) and contains passengers' full itineraries including origin, transfer points and final destination, as well as the airlines used, their capacity and seat load factor. While not all bookings pass through CRSs, in particular bookings made on some low cost and other carriers' own websites, it is likely that in Africa a large majority of bookings do use the CRS channels, especially those involving multiple flight sectors.
- 2.10 In order to understand the gaps in connectivity, we used MIDT to analyse the end-to-end journeys made by passengers, which identified where passengers have to use connecting services (often via inconvenient connection points) in order to complete their journeys, or, alternatively, make use of triangular routeings, which are extensively used by airlines in Africa to link airports with relatively low density passenger flows.

### Stakeholder consultation

- 2.11 We undertook an extensive stakeholder programme: the stakeholders were suggested by the project team and augmented by the ICA Steering Group, and additional suggestions were made during the course of the interview programme.
- 2.12 In each case an introductory email and telephone contact was made inviting participation in the study. If this was agreed a draft agenda of key themes for the discussion was shared with the stakeholder. Most of the interviews took place by telephone with a smaller number on a face to face basis.
- 2.13 We found that international aviation bodies and airlines tended to express the most interest in participating. National regulatory bodies and other government organisations were, in general, not as responsive. We note this experience mirrors that general frustrations expressed by delegates (particularly African airlines) at the 2012 Aviation Outlook Africa Conference, in the “...*lack of Government policymakers in attendance and their lack of interest in understanding of promoting an industry that is vital to a nation’s health*”<sup>9</sup>.
- 2.14 Through our attendance of the Modern Airports Africa in Nairobi (19/20 November 2013), we were able to hold face-to-face meetings with six stakeholders which proved useful for the study, and which has also led to us identifying a number of additional contacts.
- 2.15 The full list of stakeholders interviewed to date is as follows:

#### *Airlines*

- Fastjet, 14 November;
- Kenya Airways, 20 November; and
- Arik Air, 29 November.

#### *Airports and Aviation Authorities*

- Kenya Airports Authority, 18 November;
- Ghana Airports Company Limited, 20 November; and
- Wilson Airport (KAA).

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<sup>9</sup> Why Africa keeps stalling on take off, Athena Aviation, 2013

*International Organisations*

- East Africa Commission, 19 November;
- East Africa Commission Civil Aviation Safety and Security Oversight Agency, 19 November;
- ECOWAS, 23 December; and
- IATA, written response only, 22 November.

*Financing and leasing organisations*

- World Bank, 1 November
- Dubai Aerospace, 27 November; and
- African Frontier Capital, 6 November.

- 2.16 UEOMA have provided written consent for an interview which is yet to be scheduled.



### 3 Africa: a demographic and economic overview

#### Summary

Africa's population is growing rapidly. The current high population growth rate began in the second half of the 20th century, when the number of people on the continent almost quadrupled from 230 million to 811 million. By 2010 this number reached one billion and if current demographic trends persist, Africa's population will be 1.4 billion in 2025 and 1.9 billion by 2050.

In this chapter we provide an overview of some of the major African States in terms of population, wealth, trade and aviation activity. The size and rate of expansion of a country's population, its wealth and trade activity are all indicators of the level of aviation activity that might be expected in that country.

We also review population, GDP and departing seats for the top 18 African cities by PPP-adjusted GDP (2008 data). Cities with a high population, GDP and seats may indicate a potential location for a viable hub. We find that Nairobi and Addis Ababa, two existing hubs in Eastern Africa, display a relatively high level of departing seats compared to population levels. Lagos in West Africa has a relatively high population and number of departing seats however does not operate as a hub to the same extent that, say, Lomé in Togo does, despite Lomé having very low levels of departing seats and population.

#### Introduction

- 3.1 In this chapter we provide a brief overview of the current demographic and economic situation in Africa: population, economic growth, trade and propensity to fly.
- 3.2 Whilst making definitive statements about the state of a market is difficult, these factors provide a high level insight into the maturity and attractiveness of a country or region for aviation activity and investment. Any judgement about the likelihood of success for a hub, or local market for aviation transport is uncertain without supporting qualitative information and further context (such as an understanding of the safety regime or willingness of the government to facilitate aviation growth). However a number of insights can be drawn based on the consistent appearance of specific nations within the top and bottom of the metrics described in this report.
- 3.3 An overview of other factors affecting aviation in Africa, such as safety, fares, taxes and market liberalisation is provided in chapters 4 and 5.

#### Africa overview

- 3.4 Table 3.1 provides an overview of some of the major African States in terms of population, wealth, trade and aviation activity. The size and rate of expansion of a country's population, its wealth and trade activity are all indicators of the level of aviation activity that might be expected in that country.

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- 3.5 Africa's population is growing rapidly. The current high population growth rate began in the second half of the 20th century, when the number of people on the continent almost quadrupled from 230 million to 811 million. By 2010 this number reached one billion and if current demographic trends persist, Africa's population will be 1.4 billion in 2025 and 1.9 billion by 2050.
- 3.6 With 169 million people in 2012, Nigeria is, by a significant margin, the most populous country in Africa. Nigeria's high average annual growth rate of approximately +2.8% (over 2008-2012) has also been a significant driver of Africa's overall high population growth. The rate of population expansion in Nigeria is expected to continue, with +2.7% average annual growth rate expected until 2025.
- 3.7 Of particular note in Table 3.1 are those countries with high population, wealth and/or growth indicators but low or lower than average levels of aviation activity, for example Nigeria and Angola.

**TABLE 3.1 AFRICA: KEY COUNTRY OVERVIEW**

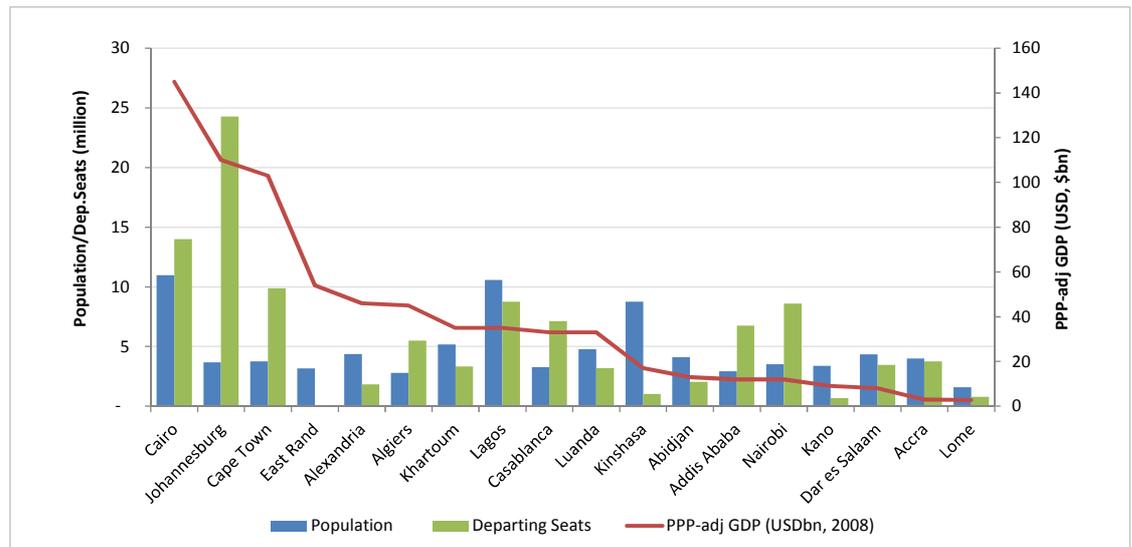
Country	Population, m, 2012	Population Growth 2012-2025	GNI PPP per capita, 2012	Trade (Imports and Exports, to World, Rank in group, 2012)	Departing Seats	Propensity to fly
Nigeria	168.8	2.7%	14.3	2	19,868,437	0.12
Ethiopia	91.7	2.4%	12.4	11	8,064,722	0.09
Congo, Dem. Rep.	65.7	2.6%	5.6	13	1,937,127	0.03
South Africa	51.2	0.5%	218.6	1	44,753,564	0.87
Tanzania	47.8	2.9%	33.3	9	6,862,870	0.14
Kenya	43.2	2.5%	40.8	7	11,887,386	0.28
Algeria	38.5	1.5%	-	3	9,598,299	0.25
Sudan	37.2	2.3%	54.6	12	4,113,009	0.11
Uganda	36.3	3.2%	31.4	17	1,917,299	0.05
Morocco	32.5	1.1%	156.2	5	13,075,251	0.40
Ghana	25.4	1.9%	76.5	6	4,780,841	0.19
Mozambique	25.2	2.4%	40.5	15	2,855,014	0.11
Madagascar	22.3	2.8%	42.6	22	2,027,181	0.09
Cameroon	21.7	2.4%	106.9	14	2,744,682	0.13
Angola	20.8	3.0%	263.7	4	5,473,978	0.26
Côte d'Ivoire	19.8	2.2%	98.8	8	2,053,828	0.10
Niger	17.2	4.0%	37.9	23	770,191	0.04
Burkina Faso	16.5	2.8%	91.7	20	1,161,835	0.07
Mali	14.9	3.2%	78.1	21	1,168,170	0.08
Zambia	14.1	3.3%	115.1	10	2,364,270	0.17
Senegal	13.7	2.7%	139.9	16	2,501,899	0.18
Zimbabwe	13.7	2.4%	-	18	2,908,258	0.21
Chad	12.4	3.0%	106.0	19	301,541	0.02
Rwanda	11.5	2.6%	-	25	1,838,274	0.16
Guinea	11.5	2.4%	85.6	24	608,079	0.05
Togo	6.6	2.4%	138.5	26	775,990	0.12

Source: World Bank, World Trade Organisation, OAG, Steer Davies Gleave analysis

**City rankings**

- 3.8 Figure 3.1 shows population, GDP and departing seats for the top 18 African cities by PPP-adjusted GDP (2008 data). Cities with a high population, GDP and seats may indicate a potential location for a viable hub.
- 3.9 Nairobi and Addis Ababa, two existing hubs in Eastern Africa, display a relatively high level of departing seats compared to population levels. Lagos in West Africa has a relatively high population and number of departing seats however does not operate as a hub to the same extent that, say, Lomé in Togo does, despite Lomé having very low levels of departing seats and population (for a full analysis of hubs in West Africa, see chapter 5).

**FIGURE 3.1 AFRICAN CITIES: GDP, POPULATION AND DEPARTING SEATS**



Source: OAG, PwC Global city rankings 2008, Steer Davies Gleave analysis



## 4 Overview of air transport policy in selected African States

### Summary

#### *Level of liberalisation*

In order to understand the legal framework and the level of liberalisation on paper, we undertook a desktop review of the aviation policies and legislative context for 11 key African States, along with a number of non-African states as a comparator. We found that Nigeria, Ghana, Ethiopia and Tanzania were relatively more “open” than other African states such as Egypt Ivory Coast, Kenya and the Democratic Republic of Congo.

#### *Key treaties*

Two key treaties/decisions in Africa relating to liberalisation in the aviation market are the Yamoussoukro Decision and the ECOWAS Treaty. The objective of the Yamoussoukro Decision (YD) is the gradual liberalisation of scheduled and non-scheduled intra-African air transport services. The Abuja Treaty (1994) is recognised as the legal basis for the YD. Of the 54 African states, 44 have signed and formally ratified the Abuja Treaty and as a result became parties to the YD.

In theory, therefore, signatory States should have a liberalised air transport market in operation both within and between them. In practice, however, this is not the case. All sources confirmed that Yamoussoukro had not been implemented, or had only been partly implemented, and indeed whilst we are aware that Yamoussoukro is cited on occasion in bilateral ASAs, it is not, in practice, taken into account during negotiations for air traffic rights.

We understand that the Fifth Freedom rights granted to airlines as part of the 1975 Treaty establishing the Economic Community of West African States (ECOWAS) States (revised in 1993) has led to a high concentration of triangular and multi-stop flights being operated in Western and Central Africa compared to the rest of the continent.

#### *Stakeholder issues*

We provide an overview of stakeholders’ comments on three key components of the Air Services Agreements: airline ownership, Fifth Freedom rights and designations of carriers by States. We understand that issues of airline ownership are the most significant concern for African States and airlines, particularly fastjet, which is deemed a Tanzanian carrier under Tanzanian law but is not majority owned by African nationals. A number of stakeholders, including Kenya Airways, reported issues concerning the granting of Fifth Freedom rights. Under the YD there is no limit on the number of carriers a State Party can designate, as long as the carriers meet the eligibility requirements, although in practice often only a single carrier is designated by each country.

## Opening up Aviation Services in Africa

### Introduction

- 4.1 In order to understand the aviation policy applied by African States and regions, we have:
- Undertaken a desktop review of the legal frameworks in place, including an overview of the bilateral Air Services Agreements in place in Africa and some key international aviation treaties; and
  - Examined policy implementation in practice through an overview of stakeholder comments on air transport policy in Africa, its impact and the key issues.

### Legal frameworks in place

- 4.2 In order to understand the legal framework and the level of liberalisation on paper, our desktop research included a review of the aviation policies and legislative context for a number of key African States. For each State, the analysis included an overview of the following areas:
- Air carriers in operation;
  - The bodies that regulate aviation, and the laws under which they do this;
  - Whether market access is regulated/limited, for each of domestic and international services;
  - The procedures that exist to obtain rights to operate particular routes;
  - The principal pieces of legislation that govern air safety, and where responsibility for this administration lies;
  - The level of passenger charges on aviation, and the organisations that charge them;
  - Restrictions to airline ownership; and
  - Key bilaterals and their restrictions.
- 4.3 The following States were included in the analysis: Egypt, South Africa, Nigeria, Ghana, Zambia, Senegal, Ivory Coast, Ethiopia, Kenya, Tanzania, and Democratic Republic of Congo.
- 4.4 We include below an overall impression of the level of liberalisation of air services in the States considered. The full analysis for each State can be found in Appendix A.
- 4.5 The Air Services Agreement Projector (ASAP) is an analytical tool devised by the World Trade Organisation that analyses bilateral Air Services Agreements (ASAs) in order to assess their level of liberalisation. The summary below has been developed using this tool.
- 4.6 The ASAP tool relies on the ICAO database of ASAs and WTO Trade Policy Review Secretariat Reports. In the passenger data analysed (see Chapter 5), we have seen more Fifth Freedom routes than implied by the ASA analysis (for example, Kenya), indicating that this source may be incomplete. We note also, however, that it is possible that a country can permit another to exercise traffic rights informally, outside an ASA. It may also happen that an airline exercises traffic rights which are not conferred by an ASA or informally and the other state(s) in question permit(s) this without making objection (for most of the 1990s there was no bilateral at all in existence between France and the US, and yet French and US

airlines continued to operate 3rd and 4th freedom services between the two countries in significant numbers, on an informal basis). Despite these potential limitations we nevertheless consider the ASAP a helpful tool in analysing and understanding the level of liberalisation in any given aviation market.

- 4.7 The WTO has devised indices that give an indication of the level of liberalisation of any given ASA and of the air transport policy of a particular State, ranging between zero for the most restrictive, and fifty, for the most open.
- 4.8 The Weighted Air Liberalization Index (WALI) is a synthetic measure of the level of liberalisation of the air transport policy of a given Signatory. It is calculated as an average of the indices of all the air service agreements concluded by that Signatory, weighted by the respective traffic they cover and ranges between zero for the most restrictive, and fifty, for the most open.
- 4.9 Four different weighting systems have been devised to accommodate different geographical and economic situations:
- Standard: gives equal weighting to various market access features (standard);
  - Fifth Freedom: gives more weighting to Fifth Freedom<sup>10</sup> traffic rights;
  - Ownership: gives more weighting to liberal withholding/ownership provisions; and
  - Designation: gives more weighting to multiple designations of carriers by states.
- 4.10 The Standard WALI for selected African states is shown in Table 4.1, along with the number of bilateral ASAs for each State. We have also included a number of non-African states as a comparator. The higher the WALI index, the more open a State's ASAs are. Whilst the non-African countries show more liberalised ASAs, there is not a significant gap between them and the more open African countries, such as Nigeria, Ghana and Ethiopia. It must be noted that, as a multilateral agreement, the Common Aviation Area in Europe is not included in the analysis below. If it were, the scores for the UK and France would be significantly higher (i.e. their markets would score as more open), as the European air transport market is liberalised under this agreement (although some restrictions, such as ownership restrictions, remain).

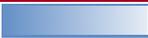
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<sup>10</sup> Fifth Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State to put down and to take on, in the territory of the first State, traffic coming from or destined to a third State (also known as a Fifth Freedom Right).

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## Opening up Aviation Services in Africa

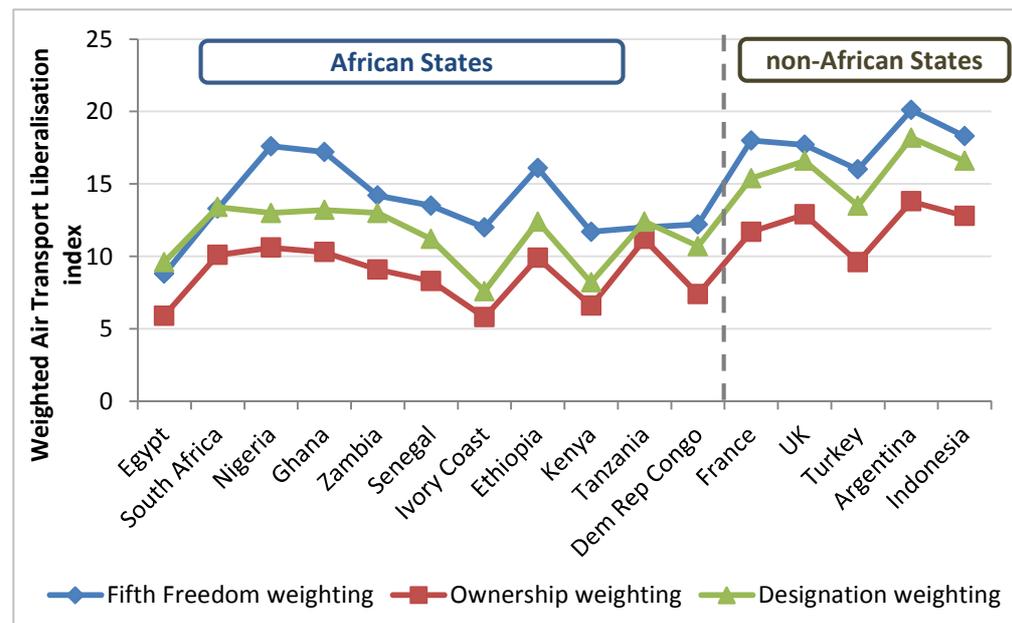
**TABLE 4.1 AIR LIBERALISATION INDEX AND NUMBER OF ASAS FOR SELECTED AFRICAN AND NON-AFRICAN STATES**

Signatory	Standard weighting		Number of Bilateral ASAs
	closed <-----> open		
Egypt		7	41
South Africa		11.6	54
Nigeria		12.4	20
Ghana		12.2	26
Zambia		10.4	13
Senegal		9.6	21
Ivory Coast		6.8	22
Ethiopia		11.6	18
Kenya		7.7	27
Tanzania		11.4	23
Dem Rep Congo		8.7	12
France		13.6	63
UK		14.3	96
Turkey		11.3	52
Argentina		16.1	33
Indonesia		14.3	26

Source: World Trade Organisation, Steer Davies Gleave analysis

- 4.11 For each of the countries listed in Table 4.1, the figure below charts the weighted Air Liberalisation Index against each of the three other weighting systems (Fifth Freedom, Ownership and Designation).
- 4.12 For all the States shown in Figure 4.1, the Fifth Freedom weighting results in the (relative) highest level of liberalisation in the air transport market, and the ownership weighting the lowest.

FIGURE 4.1 WEIGHTED AIR LIBERALISATION INDEX FOR SELECTED STATES



Source: World Trade Organisation, Steer Davies Gleave analysis

#### **Relevant international aviation treaties**

- 4.13 Two key treaties/decisions in Africa relating to liberalisation in the aviation market are the Yamoussoukro Decision and the ECOWAS Treaty. Each of these is described below.
- 4.14 The 2012 Abuja Declaration relates to aviation safety in Africa and is described further in Chapter 6.
- Yamoussoukro Decision*
- 4.15 The objective of the Yamoussoukro Decision (YD) is defined under Article 2, Scope of Application, as the gradual liberalisation of scheduled and non-scheduled intra-African air transport services. The main elements are the granting to all state parties to the decision the free exercise of first, second, third, fourth, and Fifth Freedom rights on both scheduled and non-scheduled passenger and freight (cargo and mail) air services performed by an eligible airline<sup>11</sup>.
- 4.16 The Abuja Treaty, which formally entered into force on 12 May 1994, is recognised as the legal basis for the YD. Of the 54 African states, 44 have signed and formally ratified the Abuja Treaty and as a result became parties to the YD. The other 10 states (Djibouti, Equatorial Guinea, Eritrea, Gabon, Madagascar, Mauritania, Morocco, Somalia, South Africa, and Swaziland) cannot be considered parties.
- 4.17 In theory, therefore, signatory States should have a liberalised air transport market in operation both within and between them. In practice, however, this is not the case. All sources confirmed that Yamoussoukro had not been implemented, or had only been partly implemented, and indeed whilst we are

<sup>11</sup> Open Skies For Africa, Charles E Schlumberger, 2010

## Opening up Aviation Services in Africa

aware that Yamoussoukro is cited on occasion in bilateral ASAs, it is not, in practice, taken into account during negotiations for air traffic rights<sup>12</sup>.

### *ECOWAS Treaty*

- 4.18 The 1975 Treaty establishing the Economic Community of West African States (ECOWAS) States (revised in 1993) includes a chapter on co-operation in transport, communications and tourism (Chapter VIII)<sup>13</sup>. Parts (f) and (g) of Article 32 are particularly relevant to this study:
- f) encourage co-operation in flight-scheduling, leasing of aircraft and granting and joint use of Fifth Freedom rights to airlines of the region; and
  - g) promote the development of regional air transportation services and endeavour to bring about the merger of national airlines in order to promote their efficiency and profitability.
- 4.19 We understand that the Fifth Freedom rights granted to airlines as part of this treaty has led to a high concentration of triangular and multi-stop flights being operated in Western and Central Africa compared to the rest of the continent. For further evidence see chapter 5.

### **Policy in practice: stakeholder comments**

- 4.20 In this section we provide an overview of stakeholders' comments on three key components of the Air Services Agreements (in line with the three Weighted Air Liberalization Index (WALI) options available on the Air Services Agreement Projector):
- Ownership restrictions;
  - Fifth Freedom rights; and
  - Designations of carriers by states.

### *Ownership.*

- 4.21 From our stakeholder conversations, we understand that issues of ownership are the most significant concern for African States and airlines.
- 4.22 Under the YD, the carrier must be legally established in accordance with the regulations applicable in the relevant state party and have its headquarters, central administration, and principal place of business physically located in that same country. It must also be effectively controlled by the nationals of one, or in the case of multinational airlines, several, state parties<sup>14</sup>.
- 4.23 States retain their sovereign rights on the granting of traffic rights, in accordance with international treaties, including the International Air Transport Agreement, whilst being required to apply the provisions of the YD for intra-African market ASAs. It is also required of States to ensure that designated carriers meet the eligibility criteria and maintain responsibility for safety and security oversight over their designated airlines<sup>15</sup>.

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<sup>12</sup> Fastjet, interview 14 November 2013

<sup>13</sup> Treaty of ECOWAS, signed July 24, 1993. <http://www.comm.ecowas.int/>

<sup>14</sup> Open Skies For Africa, Charles E Schlumberger, 2010

<sup>15</sup> Africa's Strategy for market access and catalyst for air transport growth, ICAO working paper, ATCONF, 2013

*Fastjet*

- 4.24 For fastjet, an airline based in Tanzania but owned by a UK-based PLC, the ownership issue is directly relevant. Fastjet is not majority owned by African nationals, but under Tanzanian Law, if an airline is registered in Tanzania and regulated by national authority it is deemed to be a Tanzanian carrier. The nationality/ ownership issue became important immediately when fastjet attempted to launch operations to other countries, for example, South Africa. Whilst under Tanzanian law fastjet is a Tanzanian carrier, other countries do not accept the designation because, under their own national legislation, designation requires ownership (or majority ownership) by Tanzanian nationals.
- 4.25 It should be noted that this issue would not be resolved even if the YD were fully implemented, since YD includes a requirement for ownership by the relevant country's nationals. In practice different countries have reacted to this legislative requirement for ownership (if it exists in their national legislation) in different ways. Some countries (e.g. Zimbabwe) have stated that they will change the language in the legislation, others (e.g. South Africa) insist on following the legislation to the letter.
- 4.26 Fastjet has therefore formed local partnerships in each country, such as South Africa, taking minority equity stakes, to obtain the route rights it seeks to operate. For example, in order to complete its attempted take-over of failed South African LCC 1time from its liquidators, it will need to comply with current South African foreign ownership laws (which limit foreign ownership of a South African airline to 25%)<sup>16</sup>.

*East African Community*

- 4.27 The East African Community (EAC) is currently drafting region-wide air transport liberalisation legislation. During interviews the EAC confirmed that the only outstanding ('burning') issue is that of ownership (i.e. the level of national ownership in a State's designated carrier). African carriers have significant concerns about well-financed non-African airlines, such as those based in the Gulf, entering and dominating African markets, should ownership restrictions be relaxed. Negotiations within the EAC may lead to a compromise on the ownership issue (which may involve interim arrangements and/or lower ownership threshold levels).

*ICAO*

- 4.28 ICAO, in its 2009 Africa Regional Report, indicated that it would like to see airline ownership rules be gradually but progressively relaxed with a view to freeing State owned airlines from political interference over their management<sup>17</sup>.

*Fifth Freedom rights*

- 4.29 The YD allows the multilateral exchange of up to Fifth Freedom air traffic rights between any African YD party state using a simple notification procedure. However this (along with other facets of the Yamoussoukro Decision) is not the

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<sup>16</sup> CAPA Yearbook 2013 - Africa, CAPA, 2013

<sup>17</sup> ICAO AFI Enhanced Regional Cooperation, ICAO, 2009

## Opening up Aviation Services in Africa

case in practice. A number of stakeholders, including Kenya Airways, reported issues concerning the granting of Fifth Freedom rights.

- 4.30 Kenya Airways noted that Fifth Freedom rights are very important for airlines to service countries with low population/propensity to fly, in order to ensure profitability. Kenya Airways have five routes in Africa where they have Fifth Freedom rights (further details were confidential and not shared with the project team). They theorised that other major sub-Saharan African airlines (such as South African Airways, Rwanda Air and Ethiopian Airways) would experience similar issues.
- 4.31 In a 2013 working paper, ICAO<sup>18</sup> notes that some airlines have been using sixth freedom right operations (i.e. transporting passengers between State A and State B via the carrier's home state) to overcome Fifth Freedom market access restrictions, as well as to foster the development of traffic to/from their base hub location.
- 4.32 In a range of policy recommendations for Africa, Africa Infrastructure Country Diagnostic (AICD) comment that the increased fifth- and sixth-freedom operations conducted by Ethiopian, Kenyan, and South African airlines, demonstrate the potential for better, more sustainable, and possibly more cost-effective services<sup>19</sup>.
- 4.33 For further information on Fifth Freedom routes in operation in Africa, see Chapter 6.

### *Designations of carriers by states*

- 4.34 Under the YD there is no limit on the number of carriers a State Party can designate, as long as the carriers meet the eligibility requirements. The Decision simply states that each State Party "shall have the right to designate at least one airline...". This seems to give rise to the possibility of State A refusing to designate a carrier wishing to commence operations to State B, say in a situation where there is protectionist behaviour towards a state carrier that has already been designated.
- 4.35 This demonstrates that, even if the YD were fully implemented, its provisions do not really constitute an Open Skies arrangement, relying very much on governmental involvement and enthusiasm to foster freedom of access for eligible airlines. The evidence shows that such enthusiasm is often absent.
- 4.36 Separately, the Decision does contain some limited grounds upon which State B could refuse authorisation to a carrier designated by State A - for instance if State B is convinced that the carrier designated by State A does not meet the eligibility criteria. However, the Decision does not allow State B to refuse the request simply on the basis that State A has already designated one carrier (i.e. State A is trying to designate multiple carriers). The question of course is the extent to which State B is nevertheless able to do so through other means / delay tactics and so forth. Designation issues were not raised by stakeholders interviewed as being a particular issue for operations in Africa.

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<sup>18</sup> Africa's Strategy for market access and catalyst for air transport growth, ICAO working paper, ATCONF, 2013

<sup>19</sup> An Unsteady Course - Growth and Challenges in Africa's Air Transport Industry, AICD, 2009

## 5 Aviation in Africa: supply & demand

### Summary

#### *Air Services*

We reviewed the types of route and the types of carrier operating from the continent's 20 biggest airports, which account for nearly 60% of total traffic in Africa over September 2012 - August 2013. The analysis shows that the mix of domestic, intra-regional, inter-regional and intercontinental traffic varies greatly between even the largest airports, revealing implicit geographical and market attributes, as well as pointing to the strategies of the airlines using them.

Interesting variations between airports are also observed in the balance of local (national) and reciprocal carriers operating the different types of route (domestic, inter-regional etc.). Differences are also noted in the extent to which triangular routings are utilised in the four African regions (Northern, Southern, Eastern and Western & Central). Triangular routings are found to be more prevalent in Western & Central Africa, reflecting the low levels of traffic, the lack of a dominant airline with a central hub, and the existence of Fifth Freedom traffic rights.

#### *Gaps in connectivity and hubs*

Our analysis of travellers' itineraries demonstrates the low level of connectivity at several important African airports, including Entebbe, Accra and Lagos (where a high proportion of indirect journeys are undertaken to/from the airports), but also Cairo and Johannesburg (where the proportion of indirect journeys may be lower, but the large traffic volumes suggest that these airports might be able to support direct markets and improved connectivity).

The low level of inter-regional connectivity across the continent is also highlighted, with as little as 31% of journeys between Northern and Southern Africa found to be direct in the period considered (Sept 2012 - Aug 2013).

The extent to which some of Africa's busiest airports act as hubs for connecting passengers is also examined. As expected, Cairo, Casablanca, Johannesburg, Addis Ababa and Nairobi all act as hubs, with high proportions (and volumes) of connecting passengers. A similar hub in Western & Central Africa is notably absent. Lomé is the only airport in the region that could be characterised as a hub, however it is small compared to busier airports, such as Lagos.

#### *Fleet*

Africa's low level of connectivity is further reflected in the relatively small size of African airlines' fleets. Despite representing 15% of the world's population, African airlines operate only 5.5% of the world's commercial passenger and freighter aircraft, thereby having the lowest level of aircraft per capita of any world region. The average age of these fleets is found to be the oldest of any world region (17 years vs 13 years for the global average), and their aircraft mix tends to involve smaller than average aircraft.

## Opening up Aviation Services in Africa

### Introduction

- 5.1 This section provides an overview of the desktop analysis undertaken to develop a detailed picture of air services currently operated in Africa, based on data from the world schedule database OAG and Market Intelligence Data Tapes (MIDT).
- 5.2 The OAG database holds a comprehensive list of scheduled and freighter flights across the world, providing details of carrier, origin and destination, routing, aircraft flight times and days of operation, as well as seat and/or cargo capacity.
- 5.3 MIDT records itineraries booked through global distribution systems (GDS), capturing passengers' origin, destination and routing. This data gives a measure of the level of demand in the market, as well as the connectivity of existing networks. MIDT does not capture bookings made directly on airlines' own reservation systems and as a result will not account for most low-cost carrier demand, as well as part of the demand using other carriers. However, low levels of LCC operations in Africa in combination with relatively low internet and electronic payment system penetration across Africa will limit this unaccounted demand. Further, the more complex itineraries which are used to reveal network connectivity are more likely to be reserved through GDS.
- 5.4 We have reviewed the MIDT data and found that it appears to represent the large majority of passenger journeys in Africa, and is generally consistent with the information in OAG, so that passenger numbers in MIDT and seats in OAG can reasonably be compared.
- 5.5 Our analysis sets out the types of domestic, short-haul (intra-regional) international, inter-regional (intra-African) international and intercontinental services operated by African and other airlines across the continent. It also examines the end-to-end journeys made by passengers and identifies where passengers have to make use of connecting services, highlighting where there are gaps in connectivity.
- 5.6 We have identified which airports act as effective hubs, both in terms of absolute numbers of connecting passengers and relative to the airport's overall size. In addition, we have identified where Fifth Freedom rights appear to be available to carriers operating between airports outside their home countries.

### *Terminology*

- 5.7 OAG categorises African countries into one of four regions: Northern, Southern, Eastern and Western & Central. The regions are mapped in Figure 5.1 below. We have relied on this segmentation in our analysis.

FIGURE 5.1 MAP OF AFRICA SHOWING OAG REGIONS



Source: OAG, Steer Davies Gleave analysis

- 5.8 We term routes:
- Domestic: e.g. Cape Town-Johannesburg.
  - Regional: short-haul international routes within a region, e.g. Nairobi-Kigali.
  - Intra-African: international routes between regions, e.g. Cairo-Lagos.
  - Intercontinental: e.g. Addis Ababa-Dubai.
- 5.9 We term carriers:
- National: all carriers registered in the departure and/or arrival country, not just flag carriers. E.g. Comair in South Africa.
  - Regional: all carriers registered in the same region as the departure or arrival country. E.g. Kenya Airways from the perspective of Kigali.
  - Other African: all carriers registered in regions other than that of the departure or arrival country. E.g. Egyptair from the perspective of Lagos.
  - Non-African: e.g. Emirates.

## Opening up Aviation Services in Africa

### Air services

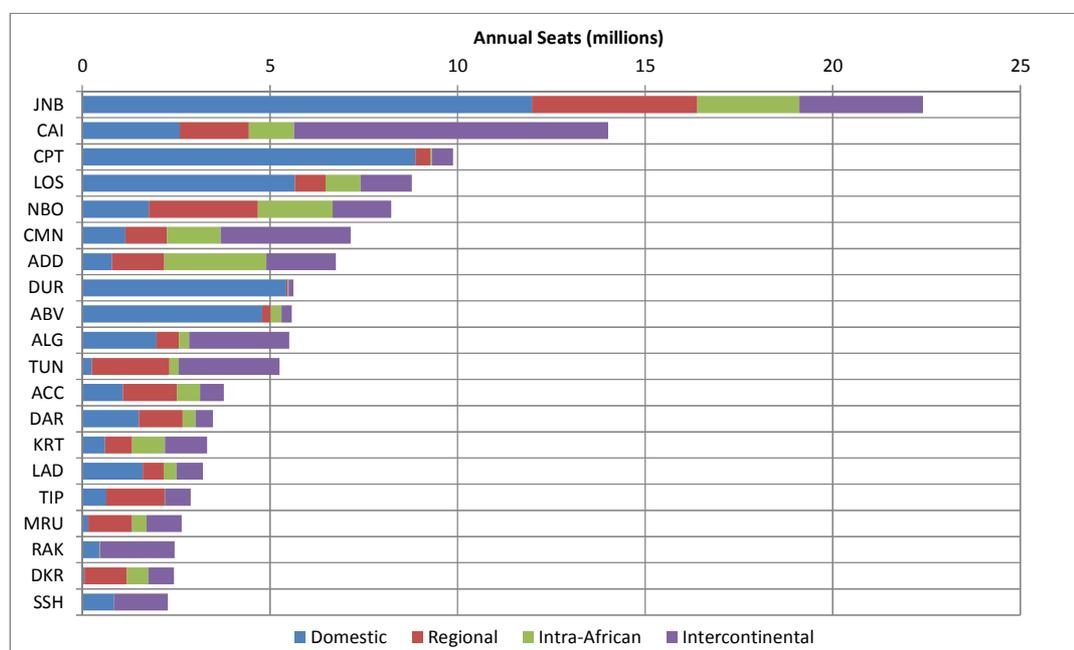
5.10 Using the OAG data, we have reviewed:

- Total traffic by airport (Air Transport Movements (ATMS) and seats), split by domestic, regional, intra-African and intercontinental flights;
- Total traffic by airport (as above), with each of the flight regions split into point-to-point and triangular routings; and
- Domestic, regional, intra-African and intercontinental traffic by airport, split by airline type (national, regional, other African, non-African).

### Types of route

5.11 The figure below shows the split of traffic origin/destination for the top 20 airports in Africa (by number of seats, September 2012 - August 2013).

**FIGURE 5.2 TRAFFIC (DEPARTING SEATS) BY ROUTE TYPE AT TOP 20 AIRPORTS IN AFRICA BY SIZE (SEATS), SEPT 2012-AUG 2013)**



5.12 Source: OAG, Steer Davies Gleave analysis, key in Table 5.1

**TABLE 5.1 AIRPORT THREE-LETTER CODE KEY**

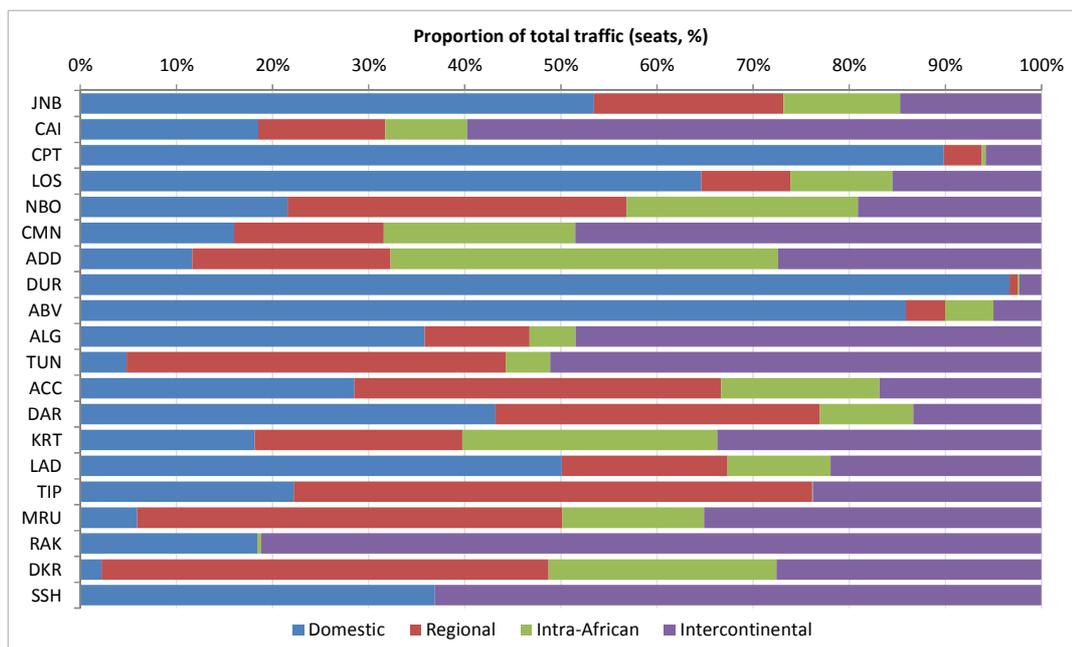
Airport	Airport name	Country	Region
JNB	Johannesburg O.R. Tambo Int	South Africa	Africa : Southern Africa
CAI	Cairo	Egypt	Africa : North Africa
CPT	Cape Town	South Africa	Africa : Southern Africa
LOS	Lagos	Nigeria	Africa : Central/Western Africa
NBO	Nairobi Jomo Kenyatta Int Apt	Kenya	Africa : Eastern Africa
CMN	Casablanca Mohammed V Apt	Morocco	Africa : North Africa
ADD	Addis Ababa	Ethiopia	Africa : Eastern Africa

## Opening up Aviation Services in Africa

Airport	Airport name	Country	Region
DUR	Durban King Shaka Int Apt	South Africa	Africa : Southern Africa
ABV	Abuja	Nigeria	Africa : Central/Western Africa
ALG	Algiers	Algeria	Africa : North Africa
TUN	Tunis	Tunisia	Africa : North Africa
ACC	Accra	Ghana	Africa : Central/Western Africa
DAR	Dar Es Salaam	Tanzania	Africa : Eastern Africa
KRT	Khartoum	Sudan	Africa : North Africa
LAD	Luanda	Angola	Africa : Southern Africa
TIP	Tripoli	Libya	Africa : North Africa
MRU	Mauritius	Mauritius	Africa : Eastern Africa
RAK	Marrakech	Morocco	Africa : North Africa
DKR	Dakar	Senegal	Africa : Central/Western Africa
SSH	Sharm El-Sheikh	Egypt	Africa : North Africa

- 5.13 Together, the top 20 airports by number of seats over September 2012 - August 2013 account for nearly 60% of total traffic in Africa. With 22.4 million departing seats over the period, Johannesburg airport is the largest in Africa and approximately 60% larger than the next largest airport, Cairo. Cape Town and Durban in South Africa also figure in the top 10, which includes Lagos, Nairobi, Casablanca, Addis Ababa, Abuja and Algiers.
- 5.14 The mix of traffic at the continent's largest airports varies greatly. Figure 5.3 below shows the proportion of each airport's capacity (departing seats, Sept 2012-Aug 2013) by type of route.

**FIGURE 5.3 SHARE OF CAPACITY (DEPARTING SEATS) BY ROUTE TYPE AT TOP 20 AIRPORTS IN AFRICA BY SIZE (SEATS), SEPT 2012 - AUG 2013**



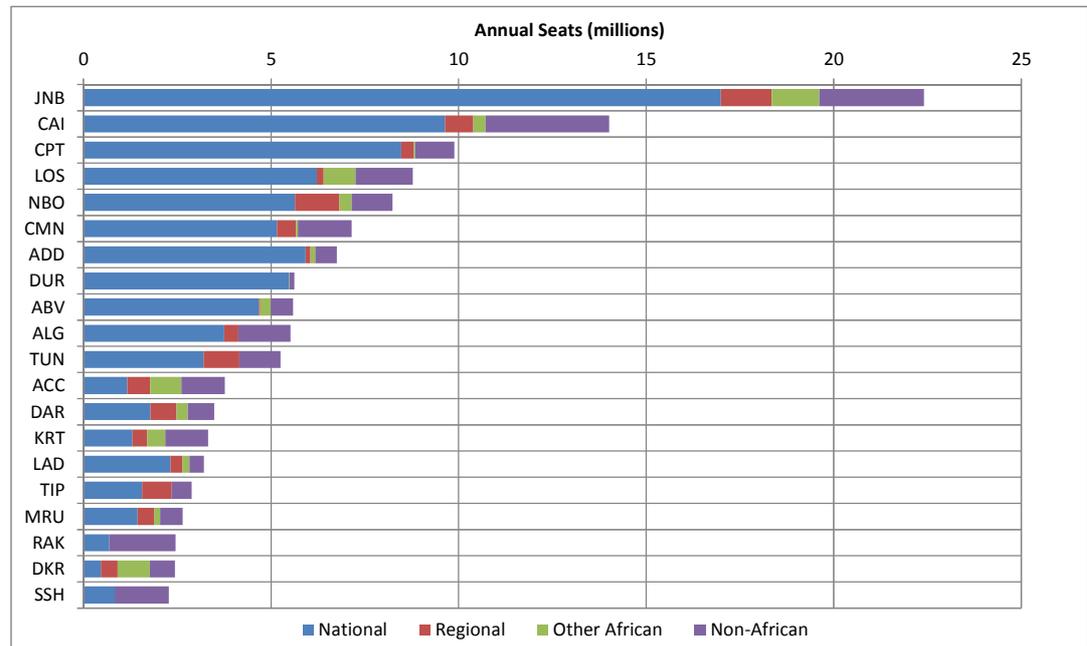
Source: OAG, Steer Davies Gleave analysis, key in Table 5.1

- 5.15 The variations observed in part reveal the different geographical and market attributes of the destinations. For example:
- Johannesburg - at the south of continent dominated by a developed domestic market
  - Cairo - close to Europe and the Middle East dominated by intercontinental routes
  - Marrakesh and Sharm el Sheikh - attracting large amounts of leisure traffic from Europe and the Middle East, but lacking almost any regional and intra-African connections
  - Cape Town, Durban and Abuja - capacity is dominated by domestic routes, with a limited share of international traffic. Johannesburg and Lagos airports acting as the main international entry/exit points for South Africa and Nigeria respectively.
- 5.16 Having accounted for such attributes the traffic mix also reveals the relative importance of the airports in regional and intra-African networks and points to the market strategies of airlines using them. For example:
- Ethiopian’s strong regional and intra-African network using its Addis Ababa hub;
  - Similarly, Kenya Airways regional and intra-African presence focussing on Nairobi; and
  - South African and BA/Comair’s relatively extensive regional and intra-African operations centred on Johannesburg.

**Types of carrier**

- 5.17 The figure below shows the split of traffic carriers for the same top 20 airports in Africa (by number of seats, September 2012 - August 2013).

**FIGURE 5.4 TRAFFIC (DEPARTING SEATS) BY CARRIER TYPE AT TOP 20 AIRPORTS IN AFRICA BY SIZE (SEATS), SEP 2012 - AUG 2013**



Source: OAG, Steer Davies Gleave analysis, key in Table 5.1

- 5.18 In general, national carriers provide all domestic capacity and approximately half of the international capacity, with the other half provided by the reciprocal national carriers.
- 5.19 Again, some interesting variability is revealed between airports, for example 86% of international capacity at Addis Ababa is provided by Ethiopian carriers compared to 3% for Ghanaian carriers at Accra.
- 5.20 Interesting variability can also be observed between different types of route at a given airport. For example at Johannesburg, South African carriers offer:
  - a larger proportion of the regional capacity (70%) than reciprocal carriers do;
  - just over half (53%) of the intra-African capacity;
  - only a small proportion (15%) of intercontinental capacity.

**Triangular routings**

- 5.21 “Triangular routings”, where an aircraft flies to multiple airports rather than making a simple out and return journey, are generally used by airlines where overall levels of traffic are low, as more markets can be served using the same capacity. Triangular routings are particularly convenient for airlines where the airline holds Fifth Freedom rights to carry passengers to airports on the route which are outside the airline’s home country, although they can also be economic even in the absence of such rights.
- 5.22 We have split the OAG data to show the traffic by region type that is point-to-point, or that involves a triangular routing. Figure 5.5 and Figure 5.6 overleaf show the proportional traffic at the main airports (top 10 by seats available) for each African region (Northern, Southern, Eastern and Western & Central Africa, as applied by OAG to the schedule data). In the figures, the darker shade of each

## Opening up Aviation Services in Africa

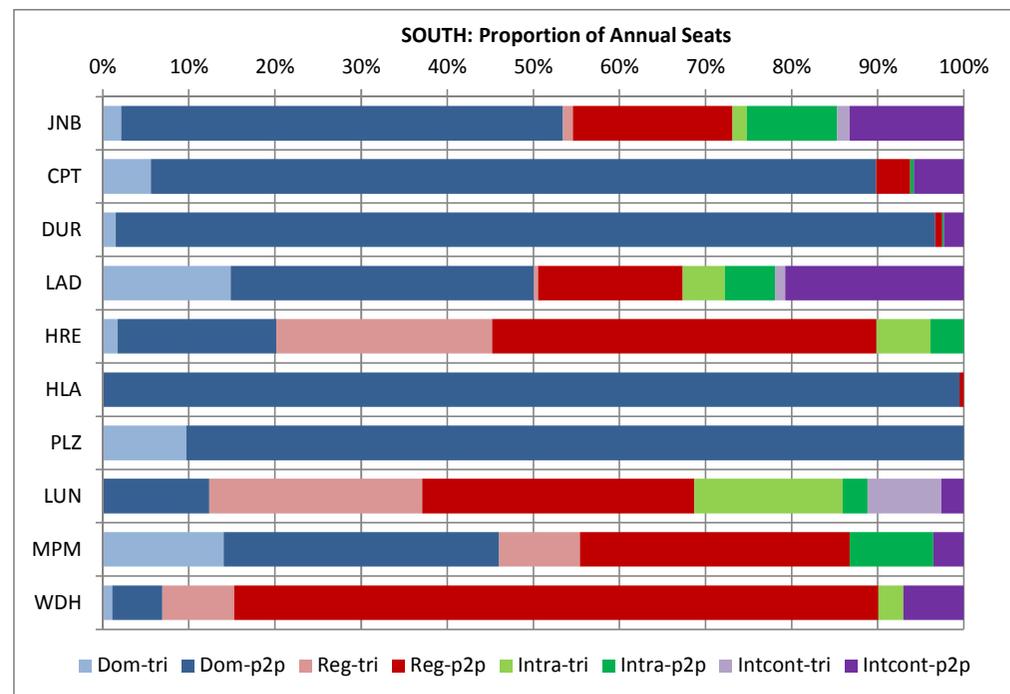
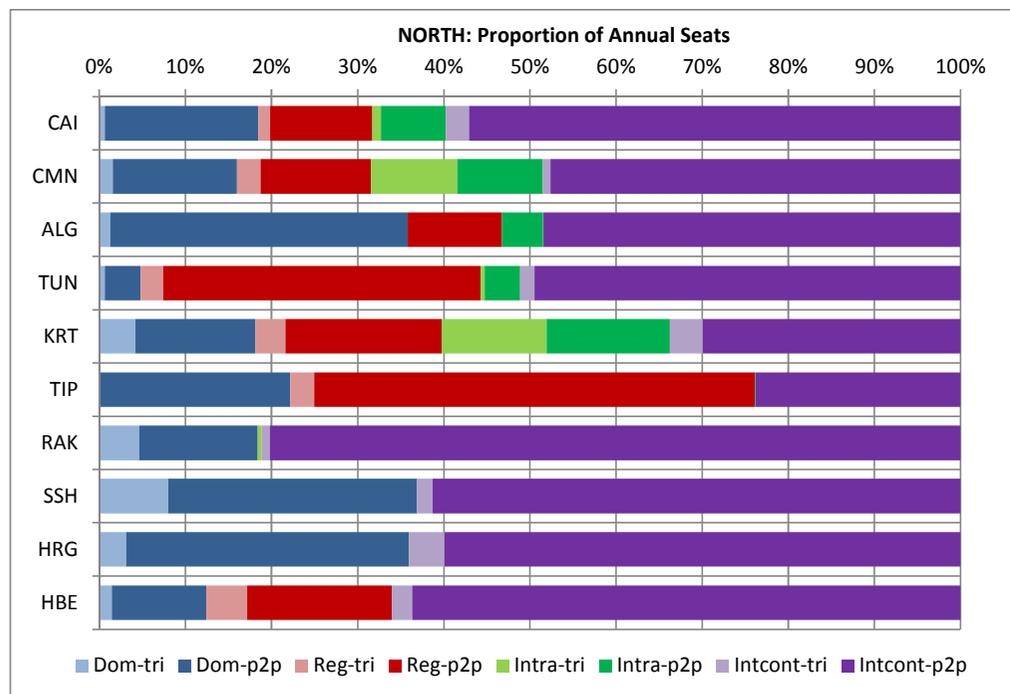
colour shows the point to point flights and the lighter shade the triangular routings.

5.23 The following observations can be made:

- Of the largest 10 airports in the Northern region, all but two have close to or greater than 50% of their traffic to inter-Continental destinations (Europe and the Middle East, primarily);
- The largest airports in the South are dominated by South African airports and have a significant proportion of domestic flights. Maputo in Mozambique and Luanda in Angola report nearly 15% of flights on a triangular domestic only route;
- The proportions of triangular routes from the Eastern and Western & Central regions are high and significantly greater than those in the Northern and Southern regions. Of particular note in the Western & Central region are Accra (26% regional triangular routes, 7% intra-African triangular routes), Dakar (33%, 8%), Abidjan (61%, 2%), and Brazzaville (26%, 11%). In the Eastern region, Kigali has a high proportion of triangular routing (59%, 3%) as does Addis Ababa (10%, 16%) and Mombasa (23%, 0%).

5.24 The prevalence of triangular routings in West and Central Africa reflects the low levels of traffic, the lack of a dominant airline with a central hub, and the existence of Fifth Freedom traffic rights.

FIGURE 5.5 POINT TO POINT AND TRIANGULAR ROUTING AT THE TOP 10 AIRPORTS (NORTHERN AND SOUTHERN REGIONS)



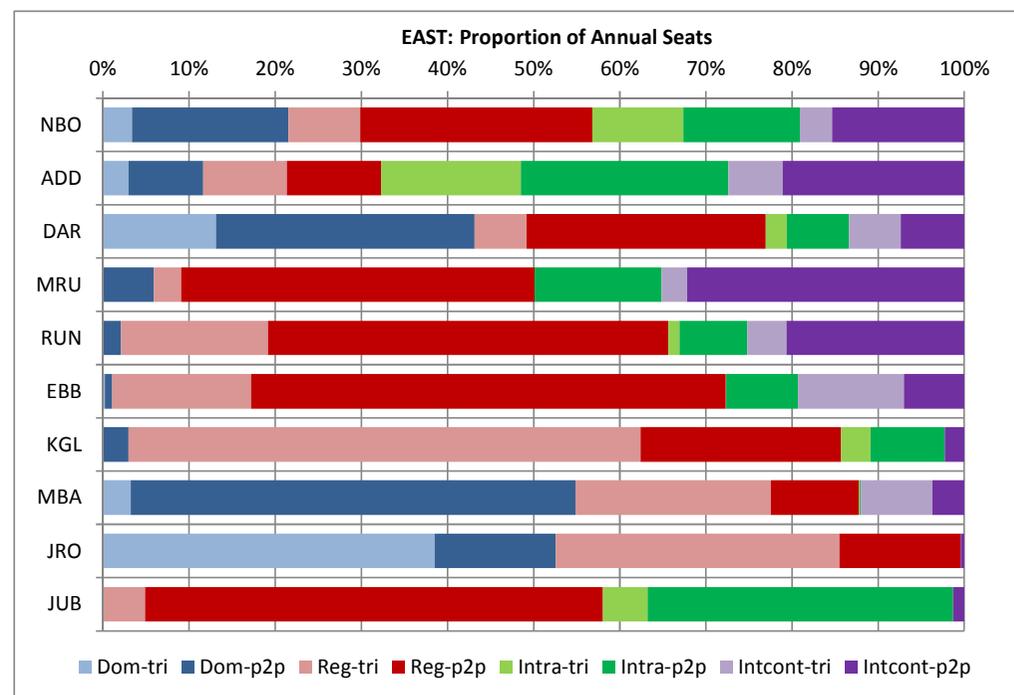
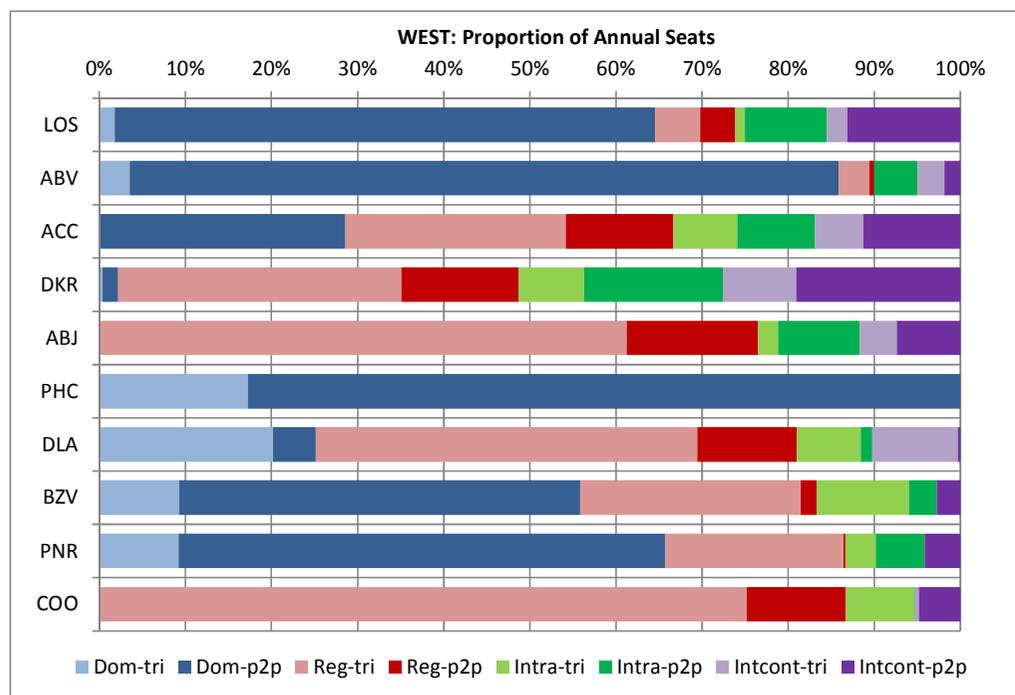
Route type	Description
Dom-tri	Domestic triangular routing
Dom-p2p	Domestic point-to-point flight
Reg-tri	Triangular routing within African OAG Region
Reg-p2p	Point-to-point flight within African OAG Region
Intra-tri	Intra-African triangular routing between OAG Regions
Intra-p2p	Intra-African point-to-point flight between OAG Regions
Intcont-tri	Intercontinental triangular routing
Intcont-p2p	Point-to-point intercontinental flight

Airport	Airport name	Country	Airport	Airport name	Country
CAI	Cairo	Egypt	JNB	Johannesburg O.r. Tambo Int	South Africa
CMN	Casablanca Mohammed V Apt	Morocco	CPT	Cape Town	South Africa
ALG	Algiers	Algeria	DUR	Durban King Shaka Int Apt	South Africa
TUN	Tunis	Tunisia	LAD	Luanda	Angola
KRT	Khartoum	Sudan	HRE	Harare	Zimbabwe
TIP	Tripoli	Libya	HLA	Johannesburg Lanseria Int Apt	South Africa
RAK	Marrakech	Morocco	PLZ	Port Elizabeth	South Africa
SSH	Sharm El-Sheikh	Egypt	LUN	Lusaka	Zambia
HRG	Hurghada	Egypt	MPM	Maputo	Mozambique
HBE	Alexandria Borg el Arab	Egypt	WDH	Windhoek Hosea Kutako Int	Namibia

Source: OAG, Steer Davies Gleave analysis

## Opening up Aviation Services in Africa

FIGURE 5.6 POINT TO POINT AND TRIANGULAR ROUTING AT THE TOP 10 AIRPORTS (EASTERN AND WESTERN & CENTRAL REGIONS)



Route type	Description
Dom-tri	Domestic triangular routing
Dom-p2p	Domestic point-to-point flight
Reg-tri	Triangular routing within African OAG Region
Reg-p2p	Point-to-point flight within African OAG Region
Intra-tri	Intra-African triangular routing between OAG Regions
Intra-p2p	Intra-African point-to-point flight between OAG Regions
Intcont-tri	Intercontinental triangular routing
Intcont-p2p	Point-to-point intercontinental flight

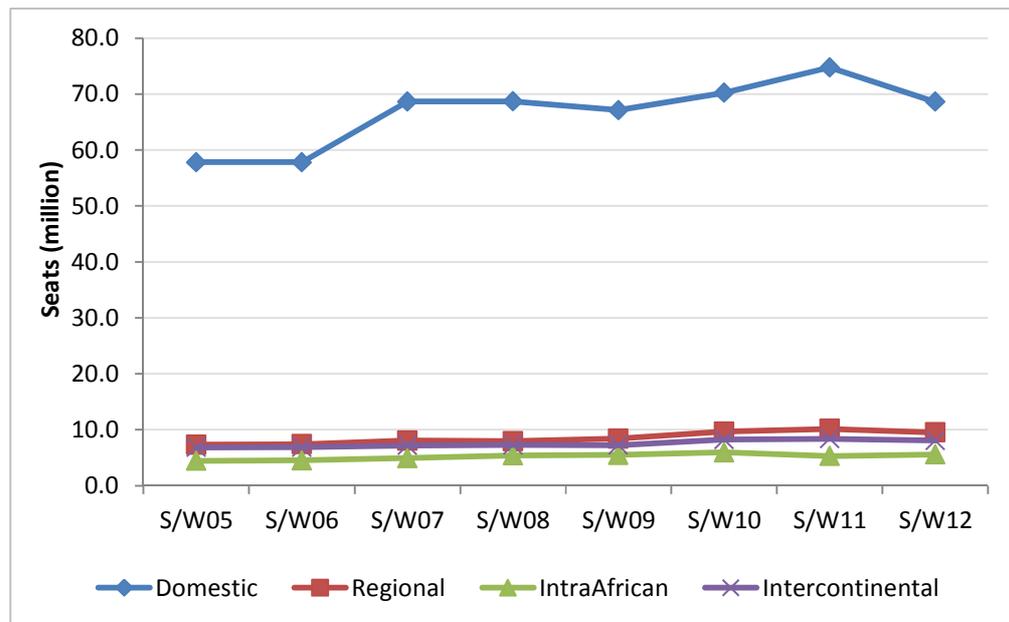
Airport	Airport name	Country	Airport	Airport name	Country
LOS	Lagos	Nigeria	NBO	Nairobi Jomo Kenyatta Int Apt	Kenya
ABV	Abuja	Nigeria	ADD	Addis Ababa	Ethiopia
ACC	Accra	Ghana	DAR	Dar Es Salaam	Tanzania
DKR	Dakar	Senegal	MRU	Mauritius	Mauritius
ABJ	Abidjan	Cote D'Ivoire	RUN	St-denis	Reunion
PHC	Port Harcourt	Nigeria	EBB	Entebbe	Uganda
DLA	Douala	Cameroon	KGL	Kigali	Rwanda
BZV	Brazzaville	Congo	MBA	Mombasa	Kenya
PNR	Pointe-Noire	Congo	JRO	Kilimanjaro	Tanzania
COO	Cotonou	Benin	JUB	Juba	South Sudan

Source: OAG, Steer Davies Gleave analysis

**Evolution of air services**

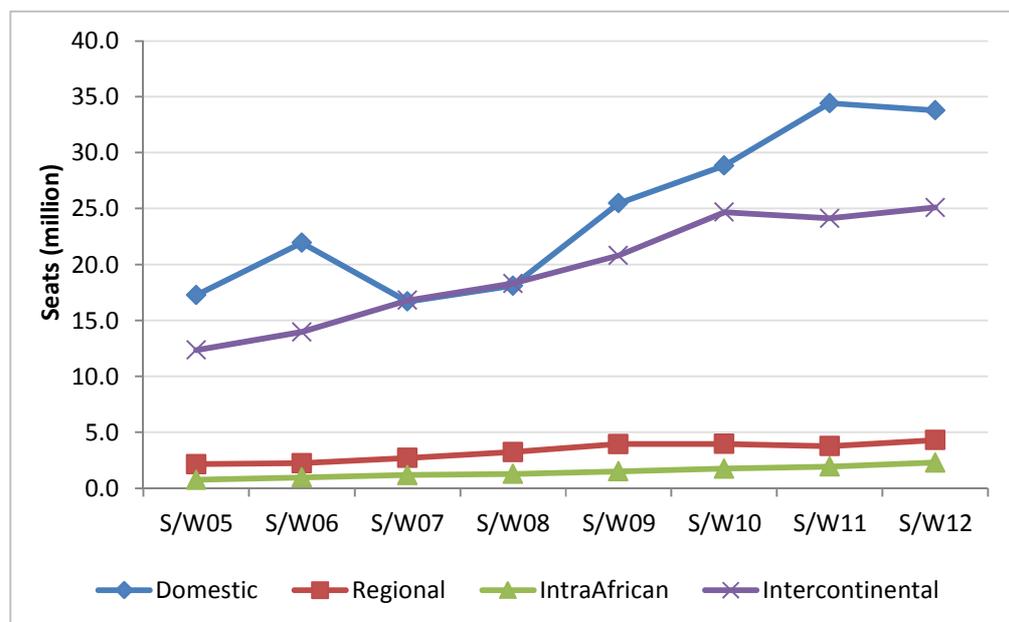
5.25 We have also analysed historical OAG data going back to 2006 in order to observe changes in the split of traffic (between domestic, regional, intra-African and intercontinental) over the period. A number of contrasting growth patterns are compared in the figures below.

**FIGURE 5.7 TRAFFIC GROWTH 2005 -2012 (SUMMER AND WINTER), SOUTH AFRICA**



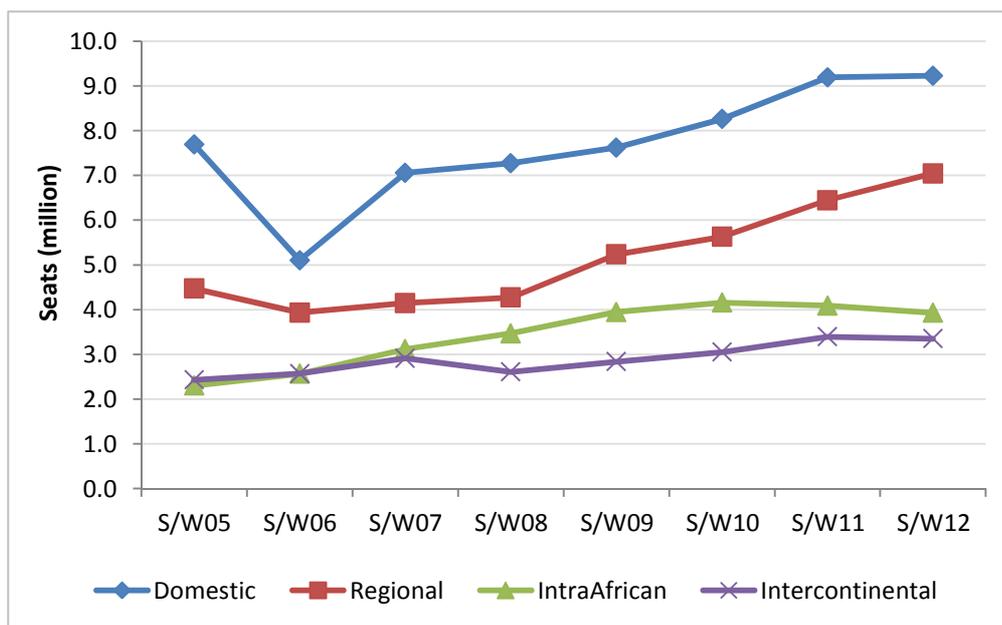
Source: OAG, Steer Davies Gleave analysis

**FIGURE 5.8 TRAFFIC GROWTH 2005 -2012 (SUMMER AND WINTER), NIGERIA**



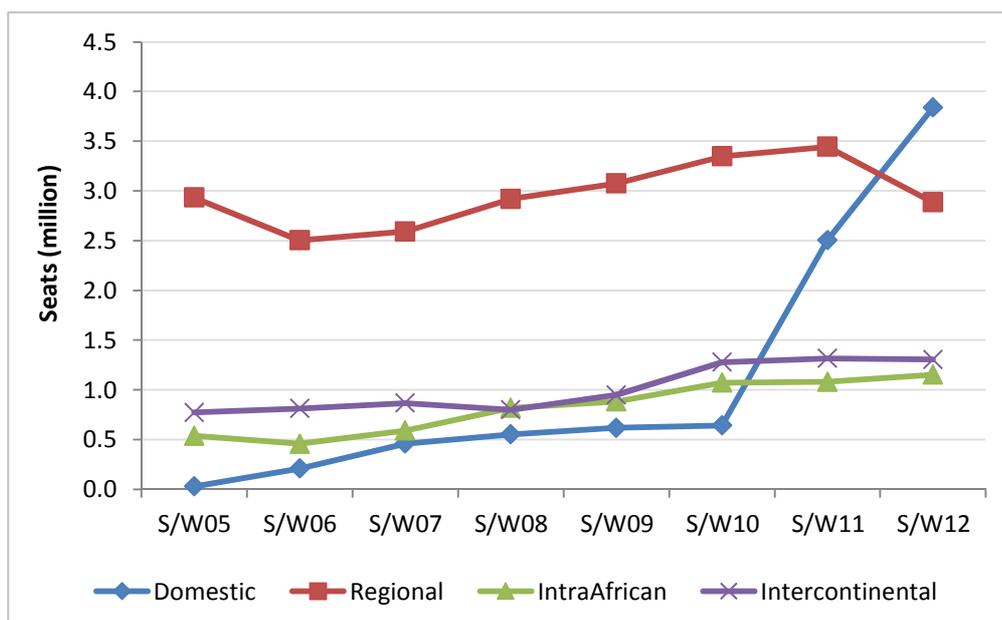
Source: OAG, Steer Davies Gleave analysis

FIGURE 5.9 TRAFFIC GROWTH 2005 -2012 (SUMMER AND WINTER), KENYA



Source: OAG, Steer Davies Gleave analysis

FIGURE 5.10 TRAFFIC GROWTH 2005 -2012 (SUMMER AND WINTER), GHANA



Source: OAG, Steer Davies Gleave analysis

5.26 All countries shown report domestic traffic as the most significant driver of overall traffic throughout the period excepting Ghana, where domestic traffic has increased significantly over the latter part of the period to 2012 (notably it tripled in 2011). South Africa’s traffic in particular is dominated by domestic journeys, and little growth has been seen in regional, intra-African and intercontinental flights over the period. Ghana and Kenya report significant proportions of regional traffic compared to Nigeria and South Africa, and, at nearly 30% in S/W 2012,

Kenya has the most significant proportion of inter-regional traffic of the four States shown.

**Connectivity**

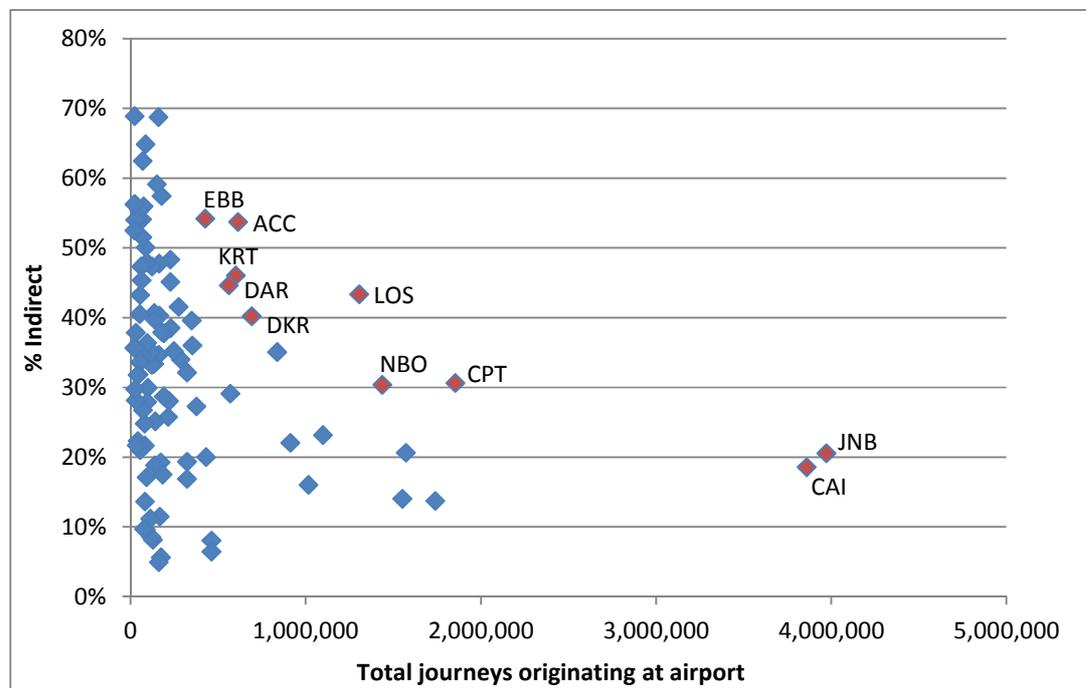
5.27 ICAO notes that there is no single definition of air transport “connectivity”. However, connectivity is a property of a network and can be defined in such a way as to constitute an indicator of the network’s concentration. Therefore, connectivity is the ability of a network to move a passenger from one point to another with the lowest possible number of connections and without an increase in fare, focusing on, from a commercial perspective, minimum connecting times with maximum facilitation ultimately resulting in benefits to air transport

**Gaps in connectivity**

5.28 Figure 5.11 below shows the proportion of journeys originating at African airports that are indirect (i.e. passengers are required to connect at least once in order to reach their final destination) against the volume of journeys originating at those airports. Highlighted are the most significant of these airports, where particularly high proportions and/or large volumes of originating journeys are indirect.

5.29 Note that the chart does not indicate connectivity *through* the airports shown - the airports are considered in terms of the types of journey (direct or indirect) required to reach the airport as a final destination (or true origin) of the journey.

**FIGURE 5.11 CONNECTIVITY OF JOURNEYS ORIGINATING AT AFRICAN AIRPORTS, SEP 2012 - AUG 2013**



Source: MIDT, Steer Davies Gleave analysis, key in Table 5.2

## Opening up Aviation Services in Africa

**TABLE 5.2 AIRPORT THREE-LETTER CODE KEY**

Airport	Airport name	Country	Region
EBB	Entebbe	Uganda	Africa : Eastern Africa
ACC	Accra	Ghana	Africa : Central/Western Africa
KRT	Khartoum	Sudan	Africa : North Africa
DAR	Dar Es Salaam	Tanzania	Africa : Eastern Africa
LOS	Lagos	Nigeria	Africa : Central/Western Africa
DKR	Dakar	Senegal	Africa : Central/Western Africa
NBO	Nairobi Jomo Kenyatta Int Apt	Kenya	Africa : Eastern Africa
CPT	Cape Town	South Africa	Africa : Southern Africa
JNB	Johannesburg O.R. Tambo Int	South Africa	Africa : Southern Africa
CAI	Cairo	Egypt	Africa : North Africa

- 5.30 Figure 5.11 demonstrates the low level of connectivity at several important African airports, as measured by the proportion of indirect journeys undertaken to/from these airports. Over half of the journeys originating at Entebbe and Accra are indirect, with Khartoum, Dar es Salaam, Dakar and Lagos all coming in at over 40%, which is high compared to Addis 23% and Casablanca 21%, indicating limited connectivity. The proportion of indirect journeys originating at Johannesburg and Cairo is much lower at around 20%; however the high volume of journeys originating at these airports suggests that they might be able to support a direct market and improved connectivity.
- 5.31 Table 5.3 shows the proportion of direct journeys (as a percentage of total journeys including direct and connecting journeys). In the left-hand part of the table, which shows journeys between African regions, intra-regional journeys are shaded red. In each region there is a higher proportion of direct journeys on intra-regional routes than on journeys between regions, as might be expected. For example, whilst the overwhelming majority (97%) of passenger journeys originating in and destined for Northern Africa are direct, only 31% of journeys originating in Northern Africa and destined for Southern Africa are undertaken on direct flights.
- 5.32 The right-hand part of the table shows journeys from each African region to other continents. Northern Africa has the highest proportion of direct journeys to other continents, which is not surprising given its proximity to Europe and the Middle East. Only 28% of journeys between Western & Central Africa to the Middle East were direct, compared with 71% from Eastern Africa.

**TABLE 5.3 PROPORTION OF DIRECT JOURNEYS WITH ORIGIN AFRICA, BY REGION (SEPT 2012 - AUG 2013)**

Origin/ Dest.	N. Af	S. Af	W&C Af	E. Af	Europe	Middle East	Asia	North America	Latin America	North America	Australia
N. Af	97%	31%	82%	77%	83%	81%	22%	38%	1%	38%	0%
S. Af	31%	95%	69%	70%	33%	59%	16%	10%	48%	10%	26%
W&C Af	80%	67%	89%	71%	44%	28%	0%	18%	12%	18%	0%
E. Af	79%	70%	71%	94%	39%	71%	36%	8%	5%	8%	19%

Source: MIDT, Steer Davies Gleave analysis

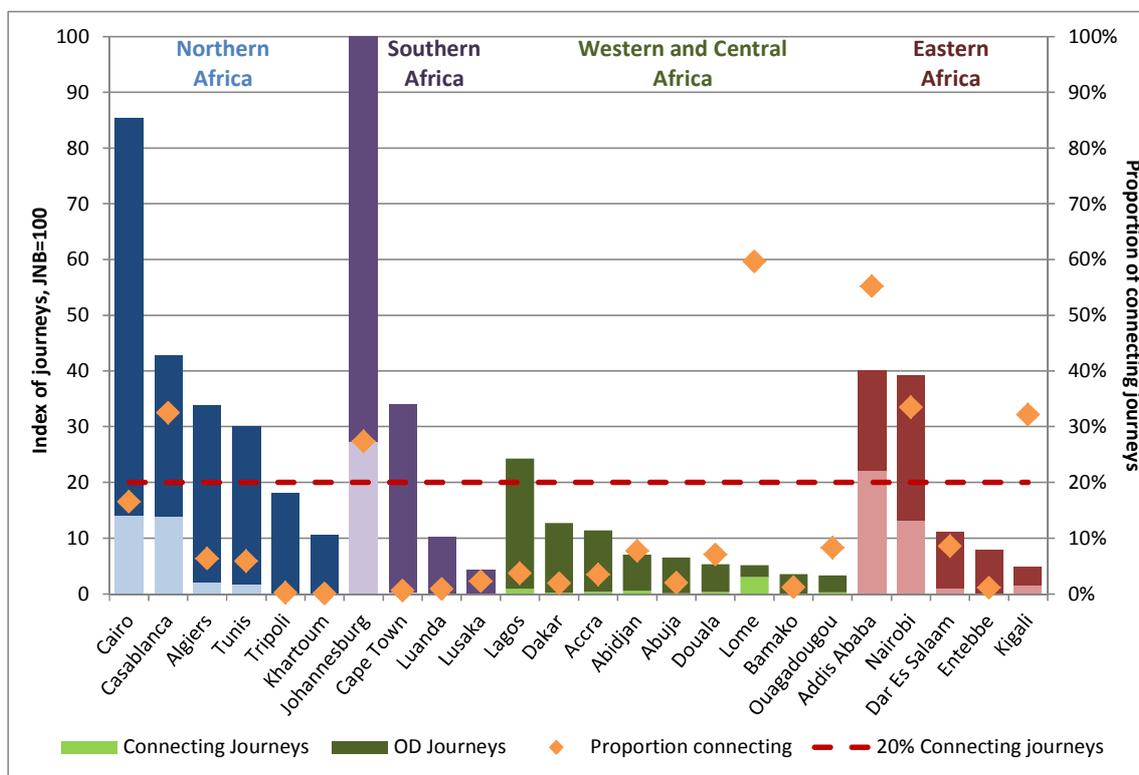
### Hubs

- 5.33 A hub airport is one used by large numbers of passengers as a transfer point for connecting journeys between other airports. Hubs are often, though not necessarily, characterised by the presence of a dominant airline making large numbers of flights to different destinations, thereby facilitating improved passenger connectivity.

#### *Level of hub activity*

- 5.34 Figure 5.12 shows the extent to which some of the continent's busiest airports act as hubs for connecting passengers. Northern, Southern and Eastern Africa all have sizeable airports where the proportion of journeys connecting there approaches or exceeds 20% (which is low compared to large global hubs such as Heathrow c.35% and Amsterdam c.50%). Cairo, Casablanca, Johannesburg, Addis Ababa and Nairobi all act as hubs.

**FIGURE 5.12 TOTAL JOURNEYS AND THE PROPORTION OF JOURNEYS CONNECTING AT LARGER (BY JOURNEYS) AIRPORTS, BY REGION (SEPT 2012 - AUG 2013)**



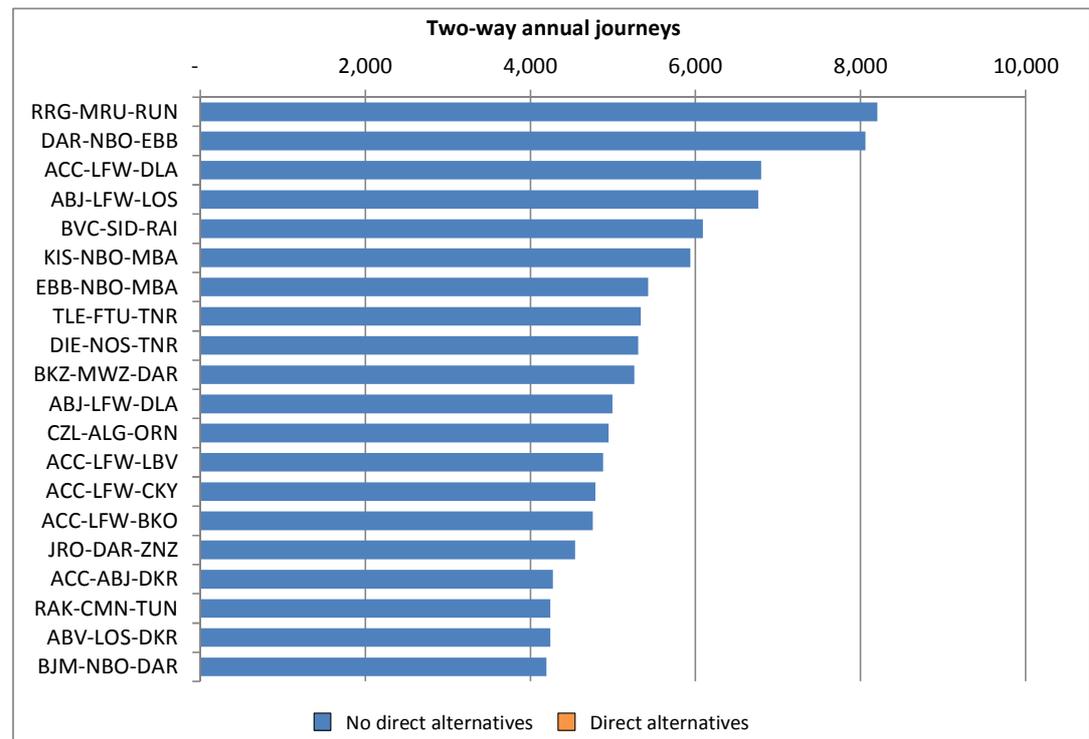
Source: MIDT, Steer Davies Gleave analysis

- 5.35 Notably, Addis Ababa has a very high proportion of connecting journeys (55%), reflecting Ethiopian’s market strategy. The impact of this strategy, through Ethiopian’s control of ASKY, is also observed at Lomé, the only airport in Western and Central Africa that might be characterised as a hub with 60% of journeys making onward connections. Lomé, however, is small compared with busier airports in the region, such as Lagos, and considerably smaller than hubs in other regions.
- 5.36 Kigali is similar to Lomé. Here Rwandair’s strategy has led to over 30% of journeys connecting through the airport. But like Lomé again, the overall volume of journeys is small compared to that using other hubs.

**Popular routings: how passengers complete their journeys**

- 5.37 This section examines how passengers reach their final destinations where direct services are not in place, by looking at the busiest routings on domestic and regional journeys, inter-regional/intra-African journeys, and intercontinental journeys.

**FIGURE 5.13 TOP 20 INDIRECT DOMESTIC AND INTRA-REGIONAL JOURNEYS, SEPT 2012 - AUG 2013 (EXCLUDING JNB CONNECTIONS)**



Source: MIDT, Steer Davies Gleave analysis, key in Table 5.4

**TABLE 5.4 AIRPORT THREE-LETTER CODE KEY**

Route	Origin/Destination	Connection hub	Destination/Origin
RRG-MRU-RUN	Rodrigues Island, Mauritius	Mauritius, Mauritius	St-denis, Reunion
DAR-NBO-EBB	Dar Es Salaam, Tanzania	Nairobi, Kenya	Entebbe, Uganda
ACC-LFW-DLA	Accra, Ghana	Lomé, Togo	Douala, Cameroon
ABJ-LFW-LOS	Abidjan, Cote D'Ivoire	Lomé, Togo	Lagos, Nigeria
BVC-SID-RAI	Boa Vista Island, Cape Verde	Sal Island, Cape Verde	Praia, Cape Verde
KIS-NBO-MBA	Kisumu, Kenya	Nairobi, Kenya	Mombasa, Kenya
EBB-NBO-MBA	Entebbe, Uganda	Nairobi, Kenya	Mombasa, Kenya
TLE-FTU-TNR	Toliara, Madagascar	Tolanaro, Madagascar	Antananarivo, Madagascar
DIE-NOS-TNR	Antsiranana, Madagascar	Nosy-Be, Madagascar	Antananarivo, Madagascar
BKZ-MWZ-DAR	Bukoba, Tanzania	Mwanza, Tanzania	Dar Es Salaam, Tanzania
ABJ-LFW-DLA	Abidjan, Cote D'Ivoire	Lomé, Togo	Douala, Cameroon
CZL-ALG-ORN	Constantine, Algeria	Algiers, Algeria	Oran Es Senia Apt, Algeria
ACC-LFW-LBV	Accra, Ghana	Lomé, Togo	Libreville, Gabon
ACC-LFW-CKY	Accra, Ghana	Lomé, Togo	Conakry, Guinea

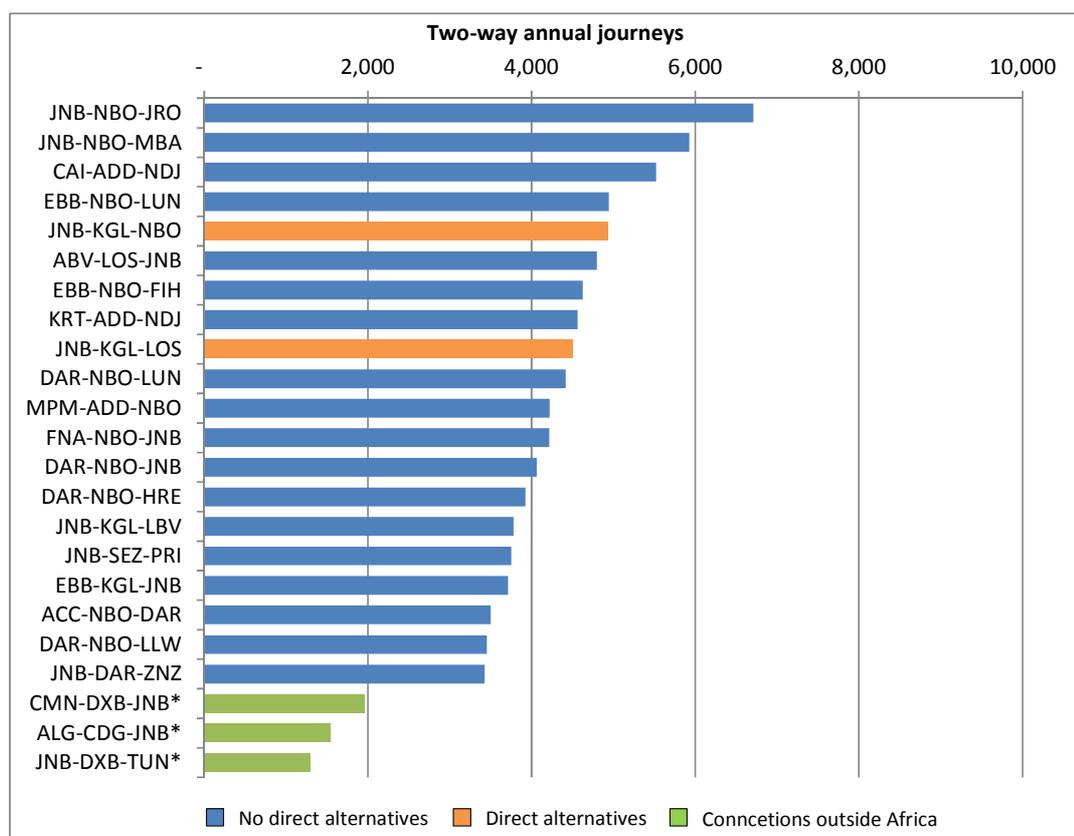
## Opening up Aviation Services in Africa

Route	Origin/Destination	Connection hub	Destination/Origin
ACC-LFW-BKO	Accra, Ghana	Lomé, Togo	Bamako, Mali
JRO-DAR-ZNZ	Kilimanjaro, Tanzania	Dar Es Salaam, Tanzania	Zanzibar, Tanzania
ACC-ABJ-DKR	Accra, Ghana	Abidjan, Cote D'Ivoire	Dakar, Senegal
RAK-CMN-TUN	Marrakech, Morocco	Casablanca, Morocco	Tunis, Tunisia
ABV-LOS-DKR	Abuja, Nigeria	Lagos, Nigeria	Dakar, Senegal
BJM-NBO-DAR	Bujumbura, Burundi	Nairobi, Kenya	Dar Es Salaam, Tanzania

5.38 The top six domestic and intra-regional journeys, along with a further four, involve connections between Cape Town or Durban and Johannesburg. Excluding these results in the 20 routes shown in the figure above. Of these:

- All transfer in the same region.
- All domestic journeys transfer in the same country.
- 9 out of 13 regional journeys transfer in a third country within the region.
- No direct routings identified.

**FIGURE 5.14 TOP 20 INDIRECT INTRA-AFRICAN JOURNEYS PLUS TOP 3 HUBBING ON OTHER CONTINENT, SEPT 2012 - AUG 2013 (EXCLUDING JNB CONNECTIONS).**



Source: MIDT, Steer Davies Gleave analysis, key in Table 5.5