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AIR TRANSPORT, A VITAL CHALLENGE FOR AFRICA

COMPLEX JOURNEYS, LIMITED CONNECTIONS AND COVERAGE – AFRICAN AIR TRANSPORT FACES MANY CHALLENGES. HOW CAN ITS DEVELOPMENT BE NURTURED?

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SUMMARY

EDITORIAL

CARLOS LOPES

Executive Secretary of the United Nations Economic Commission for Africa (UNECA)

Air transport in Africa still does not count for much on a global scale. However, strong GDP growth, the continent's fast-growing urbanisation and the expansion of the middle classes – who want to travel – are likely to shake up this situation. The African aviation market is about to experience unprecedented growth. The IATA is forecasting an average annual increase of 5.7% in air traffic until 2034. The sector also offers major investment opportunities – estimated at over $160 billion for the acquisition of new aircraft alone.

However, there are still many obstacles to realising this potential. The airlines have to bear high operating costs that put a strain on their competitiveness. They include, in particular, the exorbitant cost of fuel, high taxes and charges, greater insurance premiums and stringent regulatory constraints. Traffic rights and air fares are subject to particularly restrictive controls that often put African operators at a disadvantage. At present, intercontinental connections remain the prerogative of foreign airlines, which account for more than 80% of the traffic.

Nevertheless, a few operators – including Ethiopian Airlines and Kenya Airways – have succeeded in overcoming these challenges. Far-reaching reforms are needed at regional and continental level to promote new successes and stimulate the development of private initiative. Only effective liberalisation of air transport will lead over time to increased traffic, improved safety and lower fares. Initiatives to this effect have already demonstrated their benefits, whether in South Africa or Kenya, Côte d'Ivoire or Zambia. The political determination of African heads of government will be key to implementing the Yamoussoukro Decision in full.

> "The African aviation market is about to experience unprecedented growth."

Africa needs a strong, efficient, competitive air transport sector. It is a catalyst for regional integration, an indispensable support for intra-African trade and tourism, but also a tremendous employment driver – it is estimated that this sector should create more than 800,000 jobs over the next twenty years. The emergence of an open, less fragmented African sky will therefore be essential for supporting the continent's development. ■

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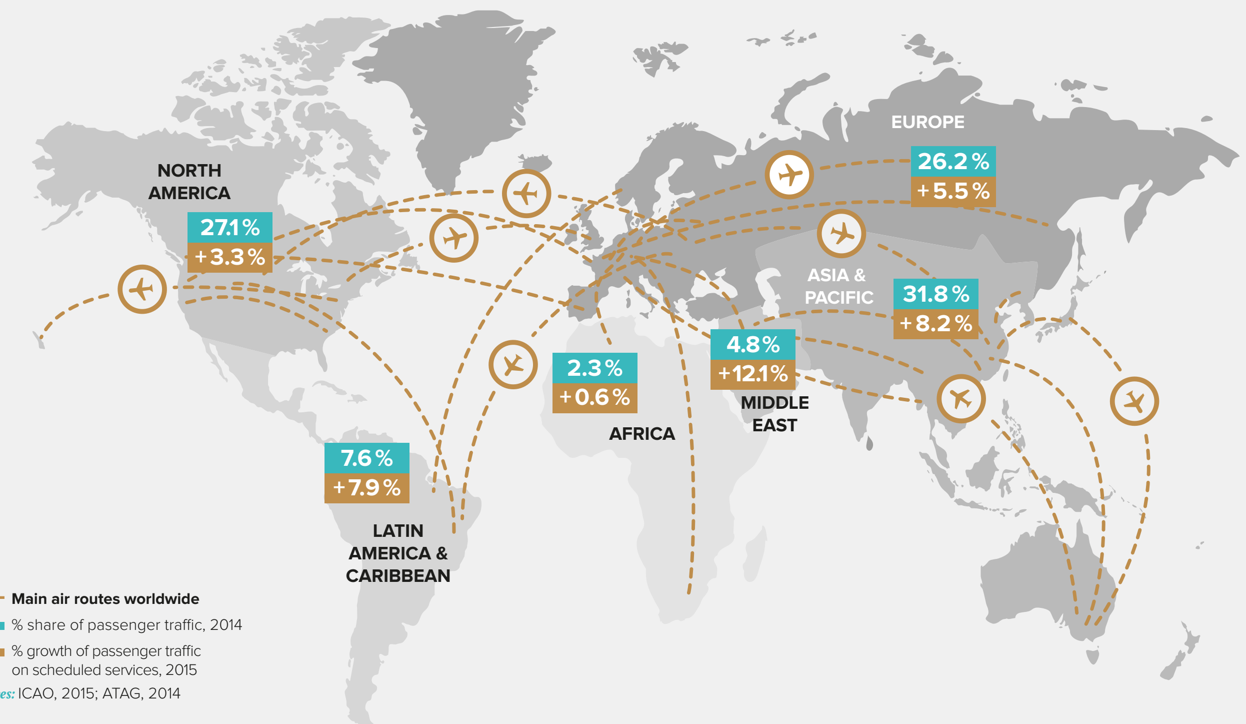
AFRICA FROM ABOVE

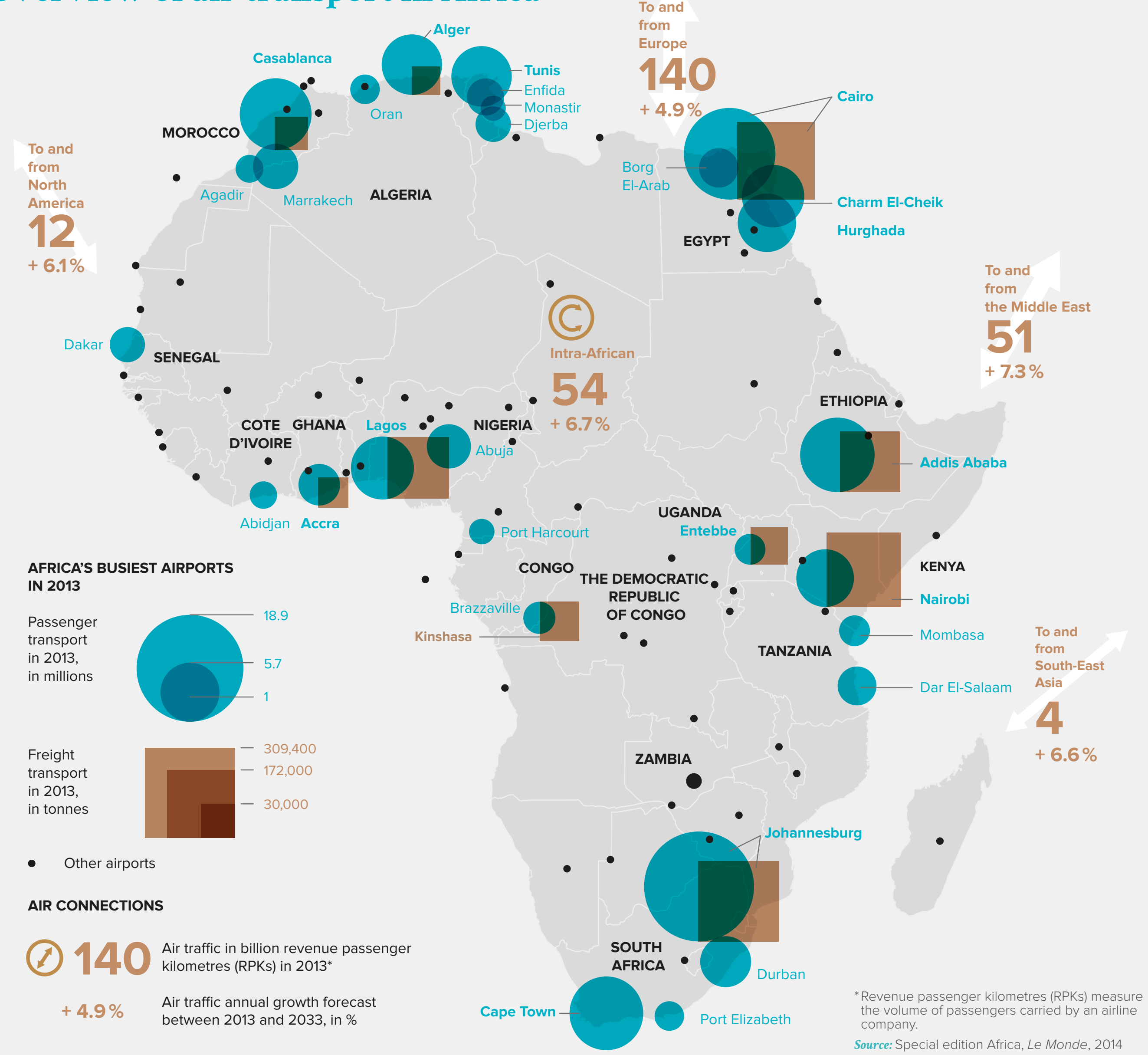
Improving access, creating jobs, boosting trade – air transport is a crucial local and international development factor. Yet the African continent remains on the margins of the global air traffic scene. Fares are expensive and intra-African flights are limited. Although a few countries stand out, with successful airports and airlines, air transport in Africa still has considerable unrealised potential.

Air traffic – A global overview



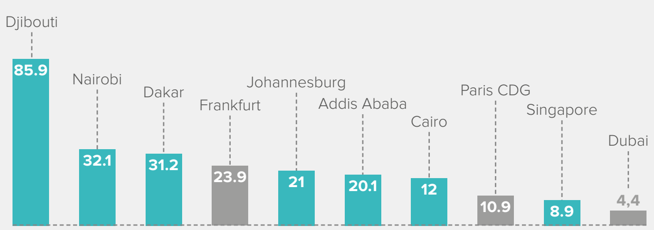
Main air routes worldwide
% share of passenger traffic, 2014
% growth of passenger traffic on scheduled services, 2015
Sources: ICAO, 2015; ATAG, 2014

Overview of air transport in Africa



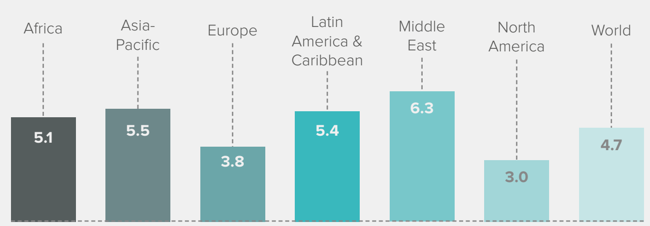
*Revenue passenger kilometres (RPKs) measure the volume of passengers carried by an airline company.
Source: Special edition Africa, *Le Monde*, 2014

High airport taxes in Africa



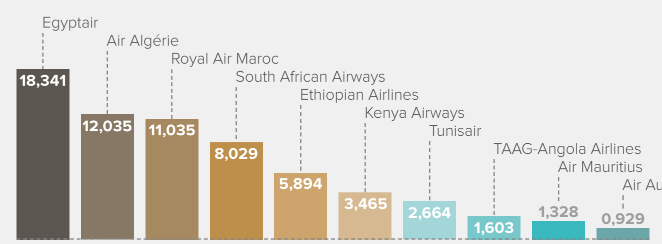
Airport taxes and fees by airport, in euros
Source: Special edition Africa, *Le Monde*, 2014

Projected annual growth rate for international traffic by region, 2012–2032



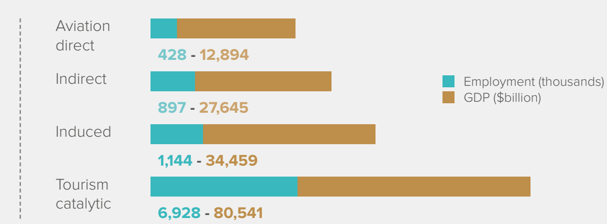
in %
Source: ATAG, 2014

Main carriers, 2015



million passengers
Source: OAG, 2015

Total jobs and GDP generated by air transport in Africa, 2012



Source: ATAG, 2015

IMPROVING AIR TRANSPORT EFFICIENCY IN AFRICA

Huge challenges to be tackled

The opportunities presented by air transport are particularly relevant to Africa, however the sector is hampered by lingering over-dependence on governments, supervisory bodies that are often inefficient or corrupt, outdated fleets and poorly-equipped airports. With appropriate political, financial and technical initiatives, the sector could make a significant contribution to the Continent's development.

Jean-Louis Baroux
President APG World Connect and APG Academy

Air transport presents a wonderful opportunity for Africa. In an environment where road infrastructures are particularly poor, it is the safest, cheapest and easiest mode of transport to operate. Because of their small footprint, airport infrastructures are much easier to secure and maintain than road or rail networks. They are also cheaper. A 1,600-metre runway is sufficient for any short or medium-haul aircraft and, although running costs per km are higher, the difference is largely offset by low maintenance costs. Air transport is also highly standardised and regulated, making it relatively easy to operate.

However, the sector's current status in Africa does not reflect its potential.

After decolonisation, every newly independent country wanted its own international airline. This spawned numerous companies, such as Air Mali, Air Mauritanie, Air Sénégal and Air Gabon, which were not all able to survive in an environment that was being rapidly deregulated. These days, most African airlines suffer from inadequate capital and poor management and are struggling to survive without the means to develop **(BOX 1)**.[1] The sector is hampered in particular from disadvantageous political circumstances and inadequate fleets and infrastructures.

1 ▸ Nevertheless, there are some high quality carriers that have, for the most part, adopted global systems. These include Ethiopian Airlines, Kenya Airways, Egyptair and Royal Air Maroc.

A DIFFICULT ENVIRONMENT

The 1988 Yamoussoukro Declaration paved the way for "open skies" agreements in Africa – at least on paper,[2] however individual countries still have reservations about freeing air transport from political control and continue to safeguard their own national carriers. However, imposing traffic restrictions is not an efficient means of protection[3] and opening up airspace gives airlines an opportunity to re-structure. Royal Air Maroc is a good example. Under pressure from tourism, Morocco signed an "open skies" agreement with Europe. Stiff competition from European airlines forced Royal Air Maroc to find a new growth model and it opened a high-performance hub in Casablanca to link West Africa with Europe – a strategy that proved highly successful.

But for most African countries, lifting air transport restrictions remains a tricky issue. In their view, the airspace belongs to them and retains a strong symbolic and political dimension and governments rarely have the necessary skills and resources to manage this sector effectively. In many cases, airline managers are still appointed based on their closeness to the country's political leadership rather than on their skills.

Air transport in Africa is also hampered by inefficient supervisory bodies which often lack credibility. Each country has its own civil aviation authority tasked with ensuring that all players in the sector comply with international rules. The International Civil Aviation Organization (ICAO) delegates responsibility for auditing airlines to each country's aviation authority. The airlines should receive certificates authorizing them to carry out their activities anywhere in the world, however certain civil aviation services are so inadequate that ICAO no longer authorises them to certify their country's carriers. This has extremely serious consequences for the airlines. Even if they operate to high standards, they are immediately placed on a blacklist and their activities are restricted to the country in which they are registered. This has happened in 15 African countries, notably the Democratic Republic of Congo. Their civil aviation authorities are deemed negligent and corrupt, the ICAO refuses to approve the audits they carry out and consequently all their airlines are blacklisted in Europe.

> "Imposing traffic restrictions is not an efficient means of protection."

Air transport in Africa is also blighted by corruption and misappropriation of funds to the point where airlines' very existence is threatened. Although such practices are not confined exclusively to Africa, they are especially widespread here. There are many unfortunate examples – in Mali, Gabon and Madagascar *inter alia* – of crimes ranging from overcharging for aircraft to embezzlement of profits earned abroad. →

FOCUS
APG WORLD CONNECT

APG World Connect is an annual global airline sales and distribution conference bringing together more than 400 airline company sales executives and general decision-makers. Participants come from 80 countries and 65 airlines. APG Academy is an online platform providing airline distribution and sales training courses.

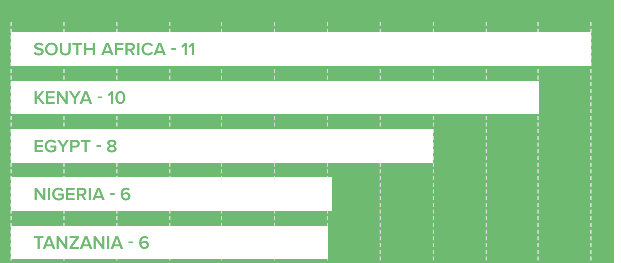
2 ▸ The Yamoussoukro Declaration granted all African airlines the "fifth freedom traffic right"; in other words, the right to carry passengers from the home country to second and successive countries.
3 ▸ The right to fly over for technical reasons has been extended to cabotage privileges, allowing airlines to serve domestic routes within the countries.

OVERVIEW OF AFRICAN AIR TRANSPORT

In Africa, 40 countries have at least one airline; 16 have several. But of the 97 African companies registered in the Official Airline Guide (OAG, 2016), only 23 have IATA codes. Assigned by the International Air Transport Association (IATA) and made up of two or three letters, these codes are recognised internationally and allow airlines to sell tickets worldwide through travel agents. The continent is characterised by a high proportion of very small companies that only operate locally. A total of thirteen companies offer low cost fares.

Africa is also defined by low passenger traffic. Fourteen companies carry more than 500,000 passengers per year and only nine exceed more than a million, which is still very modest. With a total of around 100 million passengers per year, African carriers account for less than 3% of global traffic – and these figures do not include passengers carried by non-African companies (European or Gulf carriers), which are well established in some destinations. Only two African airports appear on the list of the world's 150 top airports in terms of traffic (Airline Business, 2016): Johannesburg, which is in 98th position with 20.076 million passengers, and Cairo, in 117th position with 14.678 million passengers. All the other African airports handle less than ten million passengers per year.

Finally, with regard to aviation safety, 13 African states are not deemed fit to carry out checks on their airlines and all their carriers are consequently on the European Union's air transport blacklist, in accordance with the regulation of 21 December 2015 concerning the operating ban for safety reasons. Two states nevertheless have an exemption for their national carrier. A total of 114 companies are on this blacklist, and it must be said that many of them are marginal in the air transport sector.



Countries with most airlines. *Source :* OAG, 2016

RAGTAG FLEETS AND INADEQUATE INFRASTRUCTURES

Many African countries lack the funds needed to finance their airlines and ground infrastructures. Modern planes are very expensive, costing around 500,000 dollars per seat. A medium-sized aircraft with 150 seats (such as an Airbus 319) costs 75 million dollars and a medium-haul fleet requires 10 to 20 planes. Where will this money come from? Most aircraft are now rented or leased, but banks still demand appropriate guarantees before financing any investment. Moreover, due to the Continent's political instability, the situation is even more fraught if the airline is government-owned. As a result, African airlines very often use planes that are cheap to buy but onerous to maintain and run. Without a modern fleet and a high-quality ground operation and maintenance infrastructure, air transport cannot be profitable. In addition, many fleets consist of 10 or fewer – often poorly-matched – planes. It is quite common for all the models in a fleet to be different. How can proper maintenance and training be provided in such circumstances?

The main advantage of air transport, for both passengers and freight, is the relative freedom from dependence on road and rail infrastructures. Providing the Continent with airports is much cheaper than building roads and railway lines. Large airports can be equipped with appropriate facilities but this is not always possible for the "secondary" air network – even when there is one. To meet the needs of the population and sustain economic growth, every medium-sized town would need paved rather than unsurfaced runways and efficient air traffic control systems suitable for modern planes. Villages would also need to be equipped with unpaved runways at the very least for planes with fewer than 20 seats. This sort of regional network does not exist.

MAKING AIR TRANSPORT MORE EFFICIENT

To improve efficiency and reduce corruption in the sector, the first step needed is to implement ICAO and International Air Transport Association (IATA) standards. These two organisations establish regulations governing air transport: countries are represented by ICAO, airlines by IATA. The different countries are audited regularly by ICAO inspectors. If they do not comply with the regulations, ICAO withdraws their certification to audit airlines registered in their own country and they are immediately blacklisted. Fortunately, the vast majority of African countries currently comply with ICAO legislation. IATA rules are just as strict. This organisation facilitates billing between airlines and travel agents and acts as a clearing house for the airlines. Its financial tools are essential for every airline – unless they want to join the small group of low-cost companies operating primarily through direct sales with huge amounts of advertising. IATA's services – especially the Billing and Settlement Plan and Interline Clearing House **(BOX 2)** – actually prevent misappropriation of profits and are thus an extremely efficient measure against corruption. Unfortunately, many African airlines are unaware of these products and technical training in this area would undoubtedly lead to more widespread use.

> "Providing the Continent with airports is much cheaper than building roads and railway lines."

To give the sector fresh impetus, African governments also need to make a firm commitment to the "open skies" agreements already signed, and to designate a continental body – perhaps the African Union – to negotiate traffic agreements with Europe and the Arab States of the Persian Gulf. Africa is developing fast and its airspace is in demand so reciprocal agreements should be possible. However, no single African country is powerful enough to negotiate on an equal footing with European authorities or the powerful airlines of the Gulf States (Emirates, Etihad and Qatar Airways) and Africa needs to present a united front at these negotiations.

> "It is essential to develop projects that match the needs of local communities."

Finally, there is a need for a dedicated air transport investment fund whose resources would finance both infrastructure and airlines. Such a fund should be a private, neutral entity, totally independent of governments and focused solely on its own profitability. It would need a capital base of at least 100 billion dollars and should only finance those projects deemed to be most worthwhile.

It is essential to develop projects that match the needs of local communities. The priority for equipment and infrastructures should be to grow the "secondary" air network – with the aim of serving even small towns. At the same time, governments should endeavour to make this kind of transport accessible to the majority of the population. In a second phase, powerful regional networks will no doubt be possible – indeed, some already exist, although they are limited by poor service. Finally, intercontinental services will follow. Africa is witnessing strong growth, boosted by greater political stability, a growing population and the emergence of a well-educated middle class. Provided it does not miss this opportunity, air transport could act as a powerful economic growth vector.

IATA PRODUCTS AND SERVICES

The Billing and Settlement Plan (BSP) is used by all travel agencies. Rather than holding a stock of tickets for each airline, agencies use a neutral document allowing them to issue travel tickets and assign them to an airline. For example, a ticket from Dakar to Copenhagen via Paris, involving Air France and SAS, would be issued by the Dakar travel agent on a neutral BSP document and assigned to Air France. At the end of each month, the BSP management body collects sales proceeds from all the travel agents, and distributes them among the airlines. As there is no intermediary, the system is an effective way to avoid any misappropriation of funds. In this example, Air France has collected the full price of the ticket, while SAS has transported the passenger without yet being remunerated. The two companies share an "interline" agreement allowing the mutual acceptance of tickets. Once the passenger has been transported, SAS sends its bill to Air France. As each airline owes money to several others, and is also owed money by them, transactions are made through the Interline Clearing House (ICH) which belongs to and is managed by IATA.

THE SUCCESS OF ETHIOPIAN AIRLINES

ETHIOPIAN AIRLINES: A VERY AFRICAN STORY

In 1945, when most of Africa was still colonized, Ethiopia established an airline in a joint venture with Trans World Airlines. At this time, passengers travelling within Africa had to transit through countries *outside* the continent to reach their destinations. With its slogan "Bringing Africa Together," Ethiopian Airlines has simplified travel within Africa. Despite many "thin routes" with low passenger numbers, Ethiopian has stuck to its operational strategy.

In the early 1960s, amid a wave of Pan-Africanism, the idea emerged of establishing a continental airline that would serve as an instrument of change and a symbol of a united Africa. In 1962, a new airport and tower were built to accommodate Ethiopian's growing fleet and destinations and in May 1963, leaders of 32 African nations gathered in Addis Ababa to sign the charter establishing the Organisation of African Unity (OAU). It was aboard Ethiopian Airlines that the founders of the OAU traveled to negotiate the "vision and rebirth" of the continent. Indeed, a few years before this, Ethiopian had become the first airline to operate east-west services across the continent.

Ethiopian's expanding operations had to contend with a shortage of skilled Africans in the aviation sector. Considering that a true African airline should be managed by Africans, the airline began training Ethiopian senior managers and the first Ethiopian CEO was appointed in 1971. Ethiopians began occupying various key positions and this was frequently a novel experience for passengers at this time. Although the Ethiopian Aviation Academy first provided training only for Ethiopian pilots, aviation technicians and cabin crew, it eventually took in trainees from other African countries. Soon, a third of its intake comprised aviation professionals from the rest of the continent and subsequently from Middle Eastern countries.

As the Ethiopian fleet grew, so did the need for in-house maintenance and repair facilities. Backed by skilled professionals from its own training academy, Ethiopian launched Maintenance, Repair and Overhaul services and soon began offering these MRO services to other airlines. As other African nations began setting up airlines, Ethiopian provided technical and human resource development assistance. In 1968, Ethiopian was at the forefront of the African Airlines Association, a platform for establishing best practices. →

> "Ethiopian had become the first airline to operate east-west services across the continent."

Based on the article *Ethiopian Airlines: A symbol of Pan-Africanism and African Renaissance*, published in the Magazine of Ethiopian Airlines Selamta, May-June 2013. Available at: https://www.selamtamagazine.com/stories/past-present-future

CASE STUDY

“Despite operating in an industry that has witnessed reduced returns because of high and volatile fuel prices and geopolitical unrest, Ethiopian appears to have developed a profitable and successful business model.”

In 1973, Ethiopian became only the fourth airline to fly to China. In 1984 it became the first airline in Africa – and only the second in the world – to operate the Boeing 767 following a 13½-hour delivery flight from New York that set a new world-distance record for a commercial twin-engine jet. By 1996, as it celebrated 50 years of operations, Ethiopian had established itself as a truly African airline. Two years later it became a trans-Atlantic carrier with services to Washington and New York, boosting the number of tourists flying into the continent, especially to East Africa.

Ethiopian Airlines' operations now cover all aspects of aviation services: its cargo business caters to the growing demand for transportation of goods and its aviation academy and MRO business deploys state-of-the art technology both in infrastructure and services. Ethiopian has also helped to achieve the OAU's founding aims of political and economic integration and provided a means for bringing the continent's people, goods and services closer together. Even when certain African countries have been embroiled in conflicts, Ethiopian is frequently the last airline to stop operating in these countries, long after many other have pulled out.

In 2002, the OAU was restructured as the African Union, setting goals and visions for the 21st century. This was also an era of huge technological progress and in 2005 Ethiopian was one of the few airlines to order 10 Boeing 787 Dreamliners straight from the drawing board. Ethiopian's fleet is increasingly composed of state-of-the-art aircraft. Its development is keeping pace with the growth of the continent as a whole and it has set up a second hub in Lome, Togo — establishing a community airline called ASKY with a 40-percent paid-up capital and full strategic management to cater to West Africa. This “ multi-hubbing” concept not only serves passengers in West Africa but also feeds passengers back into Ethiopian's main hub in Addis Ababa for long-haul, trans-Atlantic routes.

By 2011, Ethiopian had expanded its reach and developed into a truly global airline by becoming a member of Star Alliance, the world's biggest airline alliance. This enabled passengers on Ethiopian to have access to 1,293 airports in 193 countries.

Despite operating in an industry that has witnessed reduced returns because of high and volatile fuel prices and geopolitical unrest, Ethiopian appears to have developed a profitable and successful business model. Ethiopian is betting on Africa's future. With the continent's increasing prominence, Africans are demanding efficient and convenient means of transportation. With its young and growing population, Africa is becoming a choice destination for investment and tourism. ■

ETHIOPIAN AIRLINES TODAY: THE KEYS TO ITS SUCCESS

Ethiopia's state-owned airline is celebrating its 70th birthday. In less than a decade, the continent's no.1 carrier – in terms of fleet size, destinations, passengers, freight, turnover and profit – has outpaced its competitors in connecting the continent to the rest of the world. So what is its magic formula?

OPERATIONAL AUTONOMY

“A capitalist success in Marxist Ethiopia,” is how the US newspaper *Christian Science Monitor* described the company in 1988. Under the dictator Mengistu Haile Mariam, the Provisional Military Government of Socialist Ethiopia (popularly known as the Derg) confirmed the company's commercial status and prohibited all intervention by its sole shareholder, the state – which nonetheless gave it the benefit of certain fiscal exemptions.

METICULOUS IMAGE MANAGEMENT

Late last year, Ethiopian Airlines hired around 30 young Chinese nationals to supplement the crews of its 28 weekly flights to China, on which “80% of passengers speak only Mandarin”. The airline also achieved a striking media coup when one of its flights in November, from Addis Ababa to Bangkok, was crewed exclusively by women.

A CUTTING-EDGE AVIATION ACADEMY

The Ethiopian Airlines Aviation Academy, inaugurated in 1964, is the company's pride and joy. More than 1,300 students of 49 different nationalities were trained there in 2015, and student numbers are set to triple by 2020. The Aviation Academy is the only one on the continent to have a flight simulator for the Boeing 787 Dreamliner.

STATE-OF-THE-ART FLEET

Having been the first African airline to operate jet aircraft, and then a Boeing 767, Ethiopian Airlines is now adding Boeing 787s to its fleet. Since 2010, the company has invested several billion dollars to acquire 32 new aircraft. It aims to have a fleet of 150 aircraft by 2025.

A HOME-GROWN CEO

Tewolde Gebremariam, CEO of Ethiopian Airlines since 2011, has spent his entire career with the company, rising up through the ranks since his arrival in 1984. Supposedly he was the target of an Eritrean assassination plot in 1994, for having subjected one of their aircraft to over-zealous inspection.

A CAPTIVE MARKET

“Ethiopian Airlines has been given more protection by its government than any other airline on the continent,” states an aviation industry expert. In skies that were for many years closed to all competitors, and benefiting from the many expatriates from other African Union countries working in Addis Ababa, the airline enjoyed optimum conditions for take-off, subsequently opening its own market to some extent in order to pave the way for accessing other markets, too.

A LONG-STANDING ALLIANCE

Emperor Haile Selassie I visited the United States in 1941 in order to realise his dream of founding an airline company. A few years later an agreement was signed with representatives of Transcontinental and Western Airlines (TWA) for the creation of Ethiopian Airlines. Apart from a few US government surplus aircraft acquired at the outset, the airline purchases exclusively Boeing aircraft – a loyalty that will culminate in the coming months with the delivery of 14 Airbus 350 aircraft. ■

Extract from an article by Olivier Caslin, *Ethiopian Airlines: les 7 secrets d'un succès*, published in *Jeune Afrique* no.2884, 17 to 23 April 2016, p.21.
The full version of this article is available in French online: http://www.jeuneafrique.com/mag/318484/economie/ethiopian-airlines-7-secrets-dun-succes/

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JEUNE AFRIQUE

Jeune Afrique, established in Tunis in 1960, is a leading weekly magazine focused on Africa. Week by week its political, economic, social and cultural news coverage offers its readers insights into the contemporary African scene. It is the leading pan-African French-language magazine in terms of circulation and readership.

CASE STUDY

OPEN SKIES

Recommendations for enhanced African air connectivity

Poor connectivity not only results in onerous travel schedules, it also holds economies back by hampering the development of air transport in general. Past initiatives to open up Africa's skies, such as the 1999 Yamoussoukro Decision, have remained largely unimplemented. An IATA-commissioned study has used statistical modelling to illustrate the enormous potential economic and social benefits of opening up Africa's air transport sector to greater competition.

Raphael Kuuchi
Vice-President
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In 1969 Neil Armstrong and Buzz Aldrin flew directly to the moon. In 2017 Google founder Sergey Brin will fly directly to the International Space Station and in 2026 a group of space pioneers will fly directly to Mars. To travel the 2500 kilometers from Algeria to Cameroon, two countries on the same continent, the most convenient route is currently via Istanbul and involves three separate flights. The minimum journey time is 24 hours but can be as much as 30 depending on connection times (**MAP**). This is truly a disturbing paradox of our age.

Poor connectivity in Africa is not just about inconvenient travel schedules. It also damages the economies of Africa's fifty-four nations and the region as a whole by hampering the development of air transport across the entire continent. Freedoms of the Air, cabotage, and foreign ownership are all very highly regulated in Africa.

ENHANCING AIR CONNECTIVITY

Aviation has the potential to make a huge contribution to economic growth and development across the continent and to open up and connect markets, facilitate trade and enable African firms to integrate global supply chains. Enhancing air connectivity can help raise productivity by encouraging investment and innovation and by improving business operations and efficiency. Air transport is indispensable for tourism which requires convenient air services to facilitate the arrival of large numbers of tourists in a region. It is also vital for transporting perishable goods from African countries to markets all over the industrialized world.

Yet, while the merits of aviation are widely known, non-physical barriers continue to obstruct the development of inter-African air transport. These obstacles mainly stem from protectionist policies favoring 'national' airlines dating from the early 1960s when many newly-independent African states created national carriers, in part to assert their nationhood. But why, some 50 years later, does this situation still persist in Africa? These factors are by no means unique to African aviation, however, more mature markets have fully embraced the benefits of greater connectivity and moved towards more liberal domestic and international regulatory frameworks.

The European air transport industry today is radically different from the highly regulated pre-liberalised (1988) one that was dominated by national carriers and state-owned airports. It took three successive packages of legislation driven at European Union (EU) level to open up the market. The effects were staggering. European air traffic surged following liberalisation. Between 1992 and 2000, the number of scheduled routes between European countries increased by nearly 75%, the number of flights increased by 88% and the number of seats offered more than doubled (ICAO, 2006). Increased competition also resulted in lower ticket prices. In real terms, average ticket prices fell by more than 15% over this period.

Improved connectivity has also benefitted developing nations in Latin America. Chile's air industry, for example, witnessed unparalleled growth following liberalisation in 1979. Air traffic in Chile increased at rates significantly higher than regional and world averages. Likewise in Costa Rica, air transport liberalisation saw tourist arrivals quadruple over 20 years and the number of air carriers serving the country almost tripled (ICAO, 2006). In Brazil, low-cost carrier start-ups prospered in a liberalised commercial environment, leading to additional routes and lower fares which in turn opened up new markets.

> "Poor connectivity in Africa is not just about inconvenient travel schedules."

THE LONG ROAD TO "OPEN SKIES" IN AFRICA

African governments have not been totally impervious to the benefits of improved connectivity and liberalisation initiatives exist at bilateral, regional and continental level with a view to improving air transport across the continent. Many African countries adopted the Yamoussoukro Decision (YD) in 1999, championed by the United Nations Economic Commission for Africa (UNECA) as part of its role in improving intra-African trade and commerce. The main purpose of the YD was to open up intra-African air transport services in terms of access, capacity, frequency and tariffs. It was designed to promote co-operation among African nations and to develop regional air travel in line with other parts of the world. This agreement committed the 44 signatories to deregulating air services and opening up regional air markets to transnational competition. The agreement was a follow-up to the similar Yamoussoukro Declaration of 1988 which lacked the necessary framework and dispute resolution arrangements, thus hindering its successful implementation.

YD is supposed to be a binding agreement but so far its implementation has been slow and restricted. According to a recent study commissioned by IATA, this is because of protectionist policies favoring national airlines, such as the provision of government subsidies, practices that discriminate against carriers from other continents, severe restrictions on African carriers placed by EU safety regulators *inter alia* and non-physical barriers such as visa and other documentary requirements (InterVISTAS, 2014). Often non-African airlines have been granted traffic rights that are denied to African operators. A number of African states have refused to open their skies to each other but have done so for carriers from different continents. Twenty-three African states have signed open skies agreements with the USA but not one has opened its skies in compliance with the YD (AFRAA, 2014). Furthermore the absence of an oversight authority, dispute resolution mechanisms and competition regulations provided for in the text of the decision has stalled implementation. There has been a lack of accountability over failures to implement the agreement and there is no fair competition watchdog. However, the →

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THE INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

The International Air Transport Association (IATA) is the airline industry trade association representing some 260 airlines, or 83% of global air traffic. It is the prime vehicle for inter-airline cooperation in promoting safe, reliable, secure and economical air services - for the benefit of the world's consumers. The international scheduled air transport industry is more than 100 times larger than it was in 1945 and IATA now has 260 members from 117 nations (up from 57 members when it was founded).

situation is changing. In 2015 the African Civil Aviation Commission (AFCAC) was designated as the oversight authority and dispute resolution mechanisms and competition rules have now been adopted. Another major challenge has been the lack of awareness of the economic benefits of full implementation of YD. There has always been great concern that increased connectivity could harm the commercial viability of existing carriers or even put them out of business as it levels the playing field.

THE BENEFITS OF OPEN SKIES

IATA decided to tackle this lack of awareness head-on by using statistical modelling to illustrate the economic benefits of the decision's implementation. The model forecast traffic between two African countries based on the two nations' levels of trade, economic characteristics, geographic relationship and existing bilateral air service agreements. By identifying changes to the terms of the bilateral agreement, the model was able to estimate the traffic impact resulting from improved connectivity. Air traffic flows between 12 African countries (Algeria, Angola, Egypt, Ethiopia, Ghana, Kenya, Namibia, Nigeria, Senegal, South Africa, Tunisia and Uganda) were analyzed. The IATA report clearly demonstrated that enhanced connectivity between African States would generate economic and social benefits **(FIGURE ➔)**. Complete air connectivity across these 12 countries would add USD 1.3 billion to GDP, create over 155,000 new jobs and generate numerous other socio-economic benefits (see SPOTLIGHT). Approximately 5 million passengers who cannot currently afford air travel would be able to do so as increased competition among airlines would cut fares by between 25% and 35%. There are also additional benefits in terms of time savings.

It is important to note that there are currently several successful liberalisation initiatives in Africa. The agreement to open up the air travel market between South Africa and Kenya in the early 2000s led to a 69% rise in passenger traffic. Allowing low cost carriers to operate between South Africa and Zambia cut fares and boosted passenger traffic by 38% in each case. Ethiopia's pursuit of reciprocal bilateral open skies agreements have made the national airline one of the largest and most profitable in Africa. Research has found that on intra-African routes with more liberal bilateral arrangements, passengers have benefited from both lower fares and more frequent services. Ethiopian Airlines has demonstrated that African carriers can thrive in a more open environment.

A major obstacle to the implementation of the YD was a lack of awareness of its benefits. Key aviation stakeholders and policy-makers in African nations now have compelling evidence of the strategic socio-economic benefits of a well-connected continent. Following publication of the report, 13 African heads of state have re-affirmed their commitment to its immediate full implementation. The transport ministers of these countries have met and developed a comprehensive implementation plan. IATA has also received requests for additional studies from the African Union (AU) and the Common Market for Eastern and Southern Africa (COMESA) to cover more countries in AFI.

While the building blocks are in place for increased connectivity across Africa – underpinned by the Yamoussoukro Decision – underlying problems need to be addressed. Governments in Africa need to start treating aviation as a strategic asset and not as instruments of foreign policy. In too many cases national policy continues to revolve around protecting the national carrier. Africa is poised to reap the rewards of an exceptional period of growth and opportunity and it needs to ensure that aviation is at its core. Comprehensive connectivity and greater market access would transform African aviation and stimulate its economies. Surely if we can fly people directly to the moon we can work together to connect African nations within a single continent. ■

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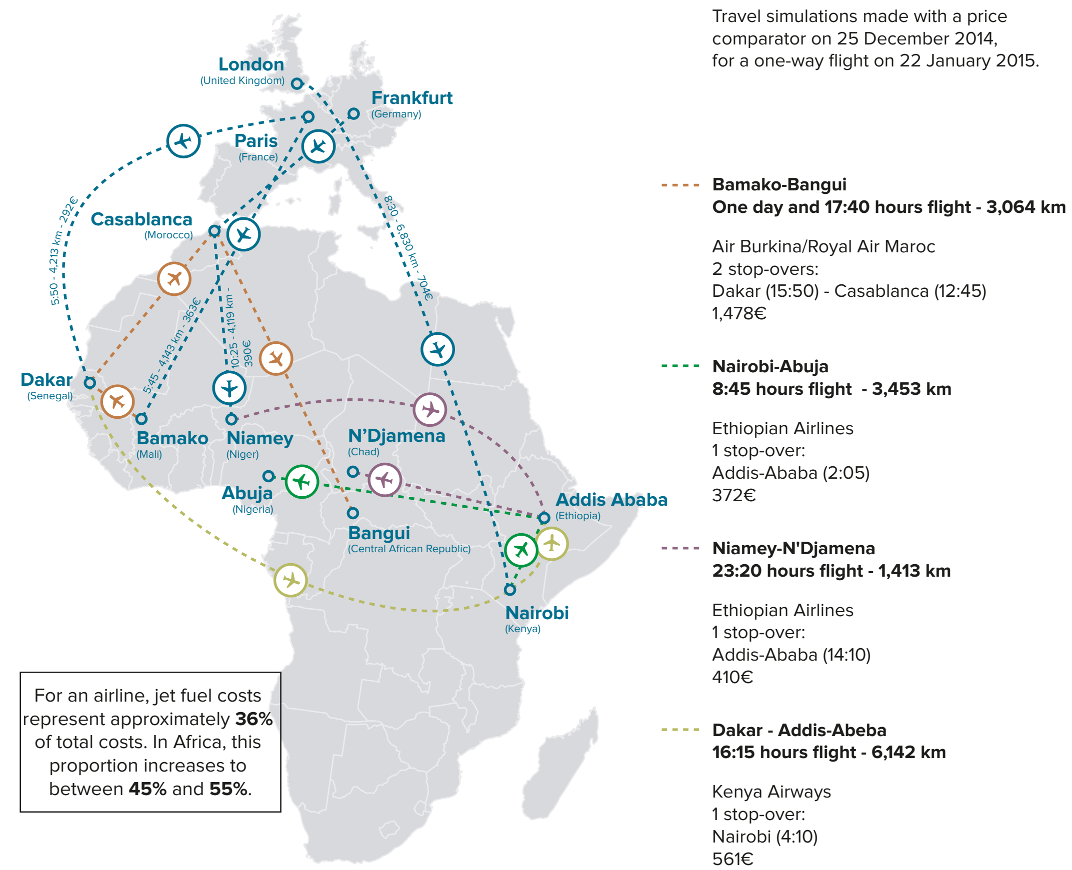
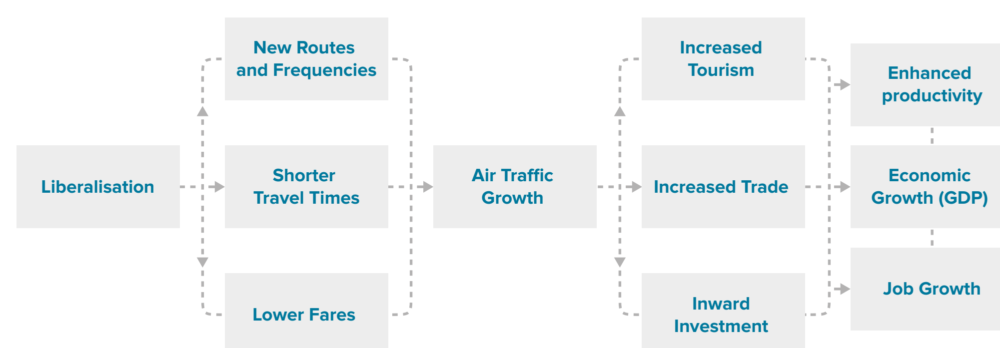
➔ The domestic flight puzzle



Source: Special edition Africa, *Le Monde*, 2014

➔ Benefits of liberalisation



Source: InterVISTAS, 2014

AIR TRANSPORT

A sector generating powerful socio-economic benefits

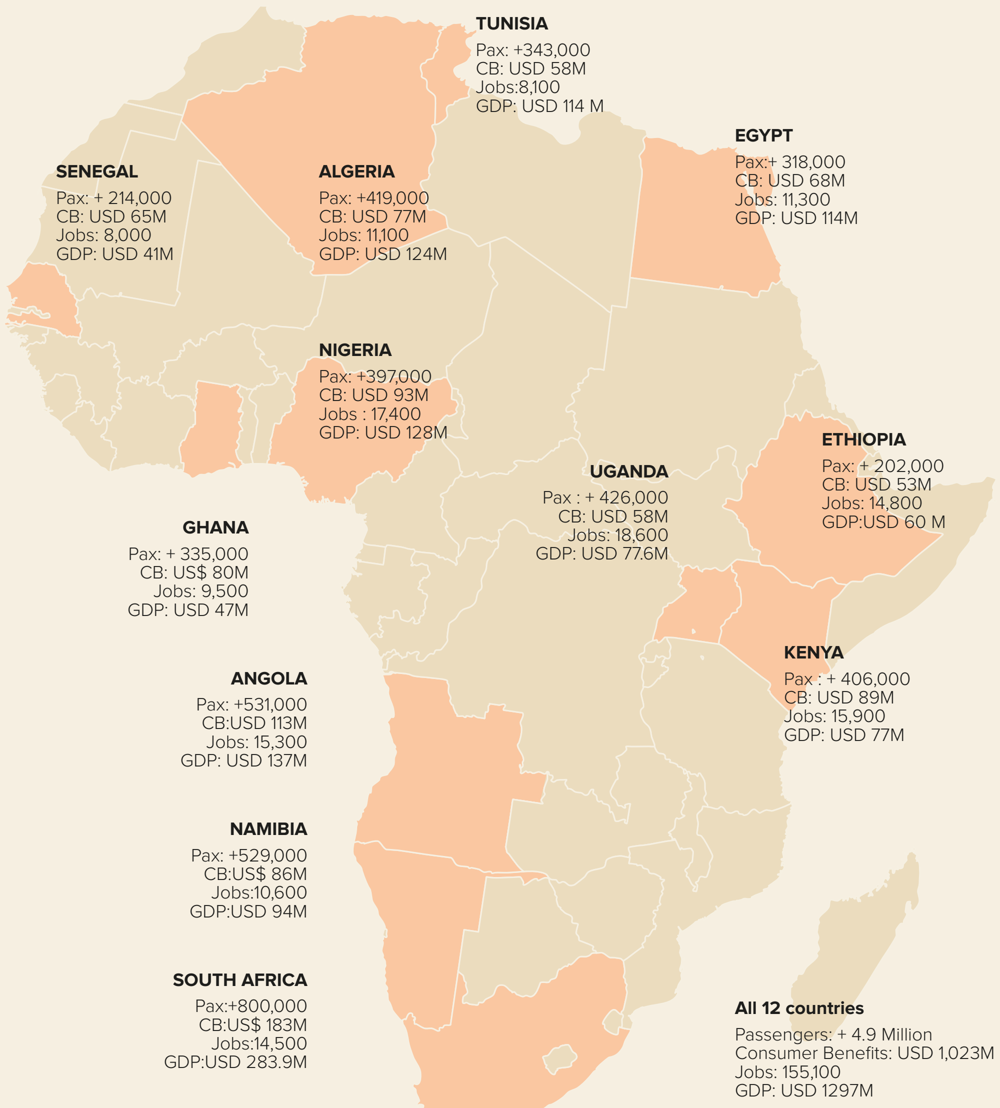
Ian Kincaid, *Senior Vice-President, InterVISTAS Consulting Ltd.*

FOCUS
INTERVISTAS CONSULTING GROUP

InterVISTAS Consulting Group is a management consultancy firm that specializes in strategic commercial, operational, and financial services for airports and airlines worldwide. InterVISTAS' strategic insight is based on quantitative analysis using both proprietary and leading industry third-party systems.

Methodology:
InterVISTAS Consulting conducted a study for the International Air Transport Association (IATA) to examine the socio-economic impacts of liberalising intra-African air markets. This study involved modelling the transmission mechanisms by which liberalisation leads to greater air connectivity, resulting in increased traffic volumes and generating direct and wider indirect economic benefits. It also involved analysing the impact of liberalising air markets between 12 countries within Africa and quantified the potential economic benefits of further liberalisation for the countries studied.

Impact of Liberalisation



Source: InterVISTAS, 2014
All financial figures are in 2013 prices.
CB = Consumer Benefits, measured in terms of consumer surplus

The study demonstrated that liberalisation does not just benefit passengers and cargo shippers. Increased levels of air service stimulate employment in the aviation industry as people are needed to handle passengers and their luggage and to operate, service, and maintain aircraft. Direct aviation industry employment tends to be higher-skilled and well paid (Amankwah-Amoah *et al*, 2011), providing socio-economic benefits to employees, their families and communities. The study estimated that further liberalisation of the African aviation industry could generate an additional 15,000 direct jobs of this nature across the 12 study countries. This includes employment by airlines, airport operators, air traffic control, ground handlers, airport security, immigration and customs, aircraft maintenance, etc. This additional aviation activity also has "spin-off" impacts for downstream industries that supply and support the aviation activities, such as food wholesalers for in-flight catering, refineries producing jet fuel, travel agents booking flights, etc. An additional 23,000 jobs are estimated to be created in these indirect industries.

Successful liberalisation could also boost tourism in the 12 countries studied, generating an estimated USD 1.3 billion in additional spending. The World Bank notes that tourism has the potential to stimulate development in a wide range of economic sectors, from construction and manufacturing (i.e., new tourism and accommodation facilities), support for the arts and local craftwork, to more advanced industries such as telecommunications, finance and legal services (World Bank, 2013). The related socio-economic benefits extend to the indirect sectors that supply the tourism industry such as food wholesalers, taxi and transportation companies, all of which provide employment and income for thousands of people across the Continent. The increased tourism following liberalisation was estimated to generate over 75,000 jobs in the 12 countries in tourism and related industries.

Perhaps most significantly, enhanced air services can facilitate many other sectors of the economy by supporting increased trade, attracting new businesses to the region, encouraging investment and boosting productivity. Industries and activities that would otherwise not exist in a region can be attracted by improved air transport connectivity. The benefits to trade, investment and productivity from liberalised air services were estimated at 42,000 jobs across the countries studied, generating incremental GDP of USD 343 million.

> "Further liberalisation of the African aviation industry could generate an additional 15,000 direct jobs of this nature across the 12 study countries."

The increase in aviation activity, tourism, trade, investment, productivity and other economic benefits will generate considerable extra employment and boost economic output in the 12 countries studied. As the map shows, liberalisation between the 12 countries is estimated to generate 155,100 jobs in aviation, tourism, and the wider economy and to add USD 1.3 billion to annual GDP (about 0.07% of the combined GDP of the 12 countries). The benefits for employment go far beyond the aviation industry itself and have the potential to enhance the productivity and wealth of a diverse range of industries across the African continent.

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FASTJET – A LOW-COST AIRLINE FLYING HIGH IN AFRICA

The low-cost airline model has experienced rapid growth right across the aviation sector with the notable exception of Africa. With the rise of Africa's middle classes and the gaps in its road network this model should be especially well-suited to the continent's needs. However, the African sector has not really been opened up to competition and the regulatory environment is overly restrictive. Even so, despite the tough business environment, Fastjet is still managing to capture new markets.

Alexis Janoray
Senior Project Manager, Proparco, AFD Group[1]

The low-cost airline business model (BOX) emerged in the United States in the 1980s following deregulation of the aviation industry and has grown rapidly since then. In Europe, Ryanair and EasyJet are the market's undisputed leaders, while Air Asia and GOL dominate the Asian and Latin American markets, respectively. Today, low-cost carriers are an integral component of the aviation sector; there are nearly 100 in all, and one of them, Ryanair, ranks among the top ten companies worldwide in terms of passenger numbers. The traditional airlines long scorned and underestimated this new business model, dismissing it as marginal and economically unviable but today they nearly all have a low-cost offering in their strategic armoury, especially for short- and medium-haul flights. Indeed the low-cost airlines have radically transformed air travel, making it vastly more accessible. Now you can travel several hours by plane for less than EUR100 just about anywhere in the world – just about anywhere, that is, except in Africa.

MEETING A CLEAR NEED

With the exception of South Africa, which has budget airlines operating on its internal network, and Morocco, which is served by European operators, the African continent is the major absentee in terms of low-cost air travel. And yet the need for a pan-African low-cost carrier is self-evident given the continent's size, the poor quality of its land transport infrastructures and the increasing mobility of its middle classes. This was the rationale behind the creation of Fastjet which aims to become the leading pan-African low-cost airline.

Fastjet believes that traditional airline company offerings are one of the factors holding back Africa's economic development. Cross-border trade and the development of tourism are just two areas severely impacted by the artificially high prices being charged by the traditional carriers in the absence of any effective competition. The continent's economic growth, increasingly stable political environment and emerging middle class are generating what will hopefully prove to be lasting, structural change, making it possible to launch an airline that is safe, reliable and affordable, serving both business and leisure customers.

Inspired by EasyJet – its holding company EasyGroup is one of the company's shareholders and is represented at executive management level – Fastjet replicates the formula that underpinned its mentor's success: a fleet that is standardised (Airbus A320-type aircraft), modern, fuel-efficient and reliable, enabling it to maximise turnaround and arrive on time. Standardisation is one of the mainstays of this model; fares are kept as low as possible[2] and additional services (luggage, refreshments, etc.) are charged as optional extras. The website is the company's only distribution channel, enabling it to keep its marketing costs down as well.

FOCUS FASTJET

Fastjet is a low-cost airline based at Julius Nyerere International Airport in Dar es Salaam, Tanzania. Created by Easyjet's founder in 2012, it currently serves ten destinations with prices starting at ten dollars for a one-way fare. It has six A319 Airbuses providing a weekly capacity of 50,000 seats. Fastjet has transported more than two million passengers since its 2012 launch and boasts a punctuality rate of 94%.

A FAST-GROWING BUSINESS

Fastjet chose Tanzania, and Dar es Salaam airport, as the hub for its initial growth phase due to the absence of a major national airline company, Tanzania's tourist potential, its dynamic economy and its large population of around 50 million people.

Since its inaugural flight on 29 November 2012, the company has served four Tanzanian and six international destinations. Boosted by the success of its Tanzanian operations – Fastjet announced a profit for the first time at the end of 2014 – the company began its international expansion phase, identifying five target markets (Kenya, Uganda, Zambia, Zimbabwe and South Africa). This market represents a combined population of 210 million people – around 20% of Africa's total population – and has various attributes that are conducive to regional development: all of these countries are English-speaking, connected by historical links and migration flows, and are already trading partners. Fastjet is targeting a fleet of 34 aircraft by the end of 2018, serving 40 destinations and selling 10 million seats a year. This would give it a 13% market share on the routes it serves, equivalent to two return trips a year for 1% of the target population.

The business model is tried and tested, the market potential appears to be sound and the product is well-suited to Africa's specific constraints. While Fastjet would appear to have every chance of success, certain factors are also impeding its development. →

THE LOW-COST AIRLINE BUSINESS MODEL

Since regulations restricting competition were scrapped in the United States in the late 1970s, certain airlines have steadily positioned themselves in the low-cost aviation sector. The model adopted by these carriers is based on selling their flights directly to the customer – with tickets that cannot be transferred, exchanged or reimbursed. Flights are direct only: the airline does not offer onward connections or baggage transfer services. Low-cost carriers use secondary airports or more spartan terminals. Check-in procedures are simplified and cabin interiors are designed to maximise passenger numbers. Meals have to be paid for – as do all other additional in-flight and ground services. The company reduces maintenance costs by operating a single aircraft type. Turnaround times are very short (less than an hour) thanks to simplified boarding procedures and lower volumes of baggage handled. Staff sometimes do several jobs: cabin crew may be required to clean aircraft between flights, for example.

1 ▸ This article is based on Fastjet's *Annual Report and Financial Statements* for 2014: please consult this publication for further details. The views expressed in this article are those of the author and not of Proparco.

2 ▸ For example, the fare from Dar es Salaam to Nairobi is advertised at $30 (excluding taxes and charges) on the company's website.

CHALLENGES AND OPPORTUNITIES

Fastjet considers the excessive constraints of the regulatory environment and the absence of genuinely "open African skies" as the major obstacles to its growth. Each individual country has its own regulatory environment. Although some bilateral air service agreements do exist, they vary considerably depending on the countries involved. In view of the key importance of regulatory issues, Fastnet is engaged in intense lobbying of governments and industry professionals to promote a more liberal regulatory environment. The company has already demonstrated that it can secure agreements that lead to greater liberalisation in African skies – for example by opening new routes, like those to Nairobi and Johannesburg, in direct competition with two major African airlines, Kenya Airways and South African Airways.[3]

How swiftly and smoothly the company grows will depend on its ability to conclude and safeguard new route agreements. To be profitable, Fastjet will need to quickly attain critical mass in its fleet (around 30 aircraft) as well as optimal fleet utilisation: the load factor will need to be over 80% and each aircraft will need to be in use for more than ten hours a day. This is not yet the case: the average load factor during 2014 was just 73% and the company was then operating just three A319 aircraft (compared to its current fleet of six). Nonetheless, by securing new routes through bilateral agreements the carrier was able to operate its aircraft for blocks of over ten hours a day in 2014 and deliver over 90% of its flights on time – the key to the model's success.

The presence of an operator like Fastjet on the African continent would appear to be good news. Its model incorporates the key ingredients for growth in this sector that have hitherto been lacking: affordable prices, increased safety and on-time flights. An initiative of this kind helps drive the process of change in – and bring greater flexibility to – the regulatory environment, following a similar pattern to what has happened in other continents. Fastnet hopes that this pioneering strategy will prove to be a catalyst for change in Africa's aviation sector. Its ongoing development will certainly be interesting to follow, offering a clear indicator of African aviation's ability to evolve and grow. ■

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Destinations served from Fastjet's Dar es Salaam hub

Source: Fastjet, 2016

3 ▸ It should also be stressed that even though the respective national governments are major shareholders in these two companies, they did not prevent a competitor from entering the market.

THE AVIATION SECTOR IN AFRICA – HOW CAN IT BE FUNDED?

Because of the capital-intensive nature of the business, raising adequate finance is one of the major challenges facing Africa's aviation sector. Local banks frequently lack the necessary resources or are fearful of the risk involved and the leasing solutions or Export Credit Agencies used elsewhere are often ill-adapted to an African context. Consequently, DFIs are ideally suited to meeting the financing requirements of the Continent's aviation sector.

Mengistu Jima
Principal Officer, ECA Finance, PTA Bank

Despite the potential economic benefits and positive externalities, the African aviation sector still lags a long way behind. On the brighter side, the main ingredients needed to boost the aviation sector have been apparent for the last decade, namely economic growth and rapid urbanisation. The future also appears to be promising: IHS Economics estimates that Africa's GDP will grow by around 4.5% between 2014 and 2034, exceeding the global average of 3.1%. Likewise, forecast growth in the Continent's passenger traffic and cargo traffic by 5.7% and 6.9%, respectively, over the same period would outstrip global averages of 4.9%, and 4.7%, respectively (Boeing, 2015).

Such economic growth and urbanisation are key drivers of demand for air transport and developing the sector is crucial for sustaining the current high economic growth rates and poverty reduction measures. The developmental attributes of the aviation sector encourage Development Financial Institution (DFIs) to intervene in the sector by providing appropriately structured funding.

A PERFECT FIT FOR DFIS

Availability of and access to finance are part of the challenges facing the African aviation sector and individual airlines given the capital-intensive nature of the activity. Though airlines may use the services of aircraft leasing companies, these are rare in Africa, meaning that raising adequate financing is a huge task for the Continents' many airlines. Most local banks lack the capital to provide long-term acquisition finance for such expensive equipment and even those that do not treat small African airlines as very high risk and charge exorbitant interest rates. →

> "Airlines have solid assets in the form of aircraft."

FOCUS
PTA BANK

PTA Bank was set up in 1985 and has developed into a leading African multilateral provider of trade and development finance. It serves as the regional bank of the Common Market for Eastern and Southern African (COMESA) and currently covers 19 African countries. PTA is tasked with developing the economies, trade and infrastructure of its member countries and has provided around USD 10 billion in financing over 30 years. Over the last five years, PTA Bank's balance sheet has grown by an annual average rate of 39%.

The most common way around aircraft financing difficulties has been through export credit agencies (ECAs)[1] in the aircraft manufacturer countries. However, ECAs generally only finance 85% of the total cost of an aircraft. Furthermore, ECAs financing is usually provided by international commercial banks who have little appetite for financing the remaining 15%. DFIs are therefore the perfect fit for financing such shortfalls as they have more appetite for high-risk, high economic and social impact projects. The involvement of DFIs is all the more appropriate given the economic and social benefits generated by the aviation industry. According to IATA, airline development has reduced real air transport prices by about 60% over the last 40 years generating an annual consumer surplus of somewhere between USD200 - 300 billion (IATA, 2011). But this does not mean that airlines have been profitable: IATA's studies show that the industry has averaged net margins of 0.1% over the same period mainly because of excessive regulations, fragmentation and commodification of airline services.

Despite their low profitability, airlines generate wider economic benefits by boosting regional connectivity, foreign direct investment, trade and tourism, making them a perfect fit for DFIs. Supporting airlines with low profitability does mean that DFIs are reckless lenders. Airlines have solid, liquid assets in the form of aircraft which can be used as collateral and easily redeployed to different geographic markets. Moreover, because of the multiplier effects and positive externalities that airlines create, governments are willing to help them in times of crisis. DFIs' expertise in dealing with airline market failure and cyclicality is well-suited to structuring deals in line with the needs of specific airlines and they have a major role to play in developing the sector in Africa.

PTA BANK AND THE AFRICAN AVIATION SECTOR

PTA Bank has financed a number of aviation infrastructure projects ranging from short term aircraft purchase pre-delivery payment financing to medium and long term financing of infrastructure projects in Eastern and Southern Africa. More recently, the Bank has also financed airport renovation and development. Aircraft financing projects have included the acquisition of passenger and cargo aircraft ranging from small turbo prop to wide-body aircraft for both small and major carriers making PTA Bank one of the major financers in the region. Over the last ten years, the Bank has put up around USD 0.66 billion to finance the African aviation sector. Three airlines account for 96% of this total: RwandAir, Ethiopian Airlines and Kenya Airways. RwandAir, with the highest cumulative total of loan approvals, illustrates the Bank's contribution to developing small and medium-sized airlines with limited access to direct ECA funding **(BOX)**.

Due to the capital-intensive nature of aircraft acquisition, the Bank has collaborated with other similar DFIs and international commercial banks. In terms of loan performance, PTA Bank's experience in the region shows that airlines with government backing have fared better than other airlines in terms of loan repayments. This is mainly because of its multilateral status, which its member countries would not want to compromise. On the other hand, airlines with weak management and a weak shareholder base have struggled to meet their debt obligations due primarily to the low profitability identified earlier and highlighted by IATA. The Bank's major objectives include promoting intra-COMESA trade and regional integration and boosting infrastructure development in member countries. It understands that supporting the aviation sector helps its ultimate goal of developing intra-regional trade and integration and has adopted a range of financing approaches in the sector targeting independent as well as government-sponsored projects.

While direct senior loans have been the main solution used by the Bank to finance long-term aviation infrastructure projects, it has also used subordinated and mezzanine loans to close financing gaps for promising projects. The Bank's aircraft financing solutions involve short-term (less than 3 years) loans for pre-delivery payments and working capital, medium term (4-7 years) subordinated loans to complement senior aircraft purchase loans, and long term (8-12 years) ECA-backed loans for aircraft acquisition. ECA-backed loans are mainly based on a lending structure acceptable to the relevant ECAs. The Bank also provides guarantee facilities to ECAs lending directly to an airline. With such a comprehensive range of financing solutions, the Bank aims to meet both private investor and member country needs for infrastructure development in the aviation sector. ■

> "DFI have a major role to play in developing the sector in Africa."

AN AIRLINE CASE STUDY

Rwanda is a small landlocked country and local and foreign investors have shown little interest in its airline industry. As a result, the Government of Rwanda has made RwandAir one of its strategic projects to promote trade, export and tourism and underpin the "Vision 2020" program to transform the country into a middle-income country.

PTA's relationship with RwandAir goes back to 2009 when the airline relied solely on wet leased aircraft. The Bank enabled the airline to acquire two reconditioned jets, later replaced by two new bigger Boeing aircraft. In just six years, RwandAir managed to grow its fleet from 0 to 8 aircraft and steadily increase its market share.

Thanks to the state commitment to developing the country's aviation sector, the partnership between the Bank and RwandAir has flourished. The Bank recently approved another ECA-backed loan to acquire two Airbus wide-body aircraft and the airline now accounts for PTA Bank's highest cumulative loan approvals to an airline. This demonstrates the Bank's policy of supporting clients with committed shareholder support and strong economic and social impacts but limited access to direct ECA funding.

The state's aggressive growth strategy has not been without its downside. Rapid growth places a strain on the airline's finances and profitability despite growing passenger uplift and revenue. However, the state is committed to supporting the airline until it achieves planned growth targets. For example, it has provided PTA Bank with sovereign guarantees and the airline with ongoing financial support (in the form of shareholder loans, equity injections, etc.).

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IATA, 2011. Vision 2050 – Report 12 February. Montreal-Geneva. Available at: http://www.iata.org/pressroom/facts_figures/documents/vision-2050.pdf

1 An Export Credit Agency (ECA) is a financial institution or agency that provides trade financing, such as guarantees, loans and insurance, to domestic companies for their international activities. The primary objective of ECAs is to take the risk and uncertainty of payments away from the exporters when exporting outside their country and shift it to themselves, for a premium. ECAs also underwrite the commercial and political risks of investments in overseas markets that are typically deemed to be high risk.

SUPPORTING SUSTAINABLE AIR TRANSPORT INNOVATIONS

Air transport is vital for local and global economic development. It plays a key part in regional integration and generating jobs. In terms of the environment, energy and climate, the sector has set itself restrictive, ambitious targets for reducing pollution and CO_2 emissions. International donors and lenders and their partners will be needed to support some of these initiatives in the future.

Stéphane Carcas
Project Manager, AFD

Charlotte Logeais
Task force, AFD

Passenger air transport – essentially short-haul for business trips and medium/long-haul for leisure trips – is a reliable, fast means of transport. However, its image is also associated with highly publicised accidents and environmental harm, i.e., noise, pollution, fuel consumption and much of the greenhouse gas emissions that are to blame for climate change.

Nevertheless, air travel remains the safest mode of transport although there are considerable differences between continents.[1] The aviation sector also plays an essential role in local and international economic development by helping to improve access and regional integration and generating social benefits. It transports three billion passengers a year and a third of the world's freight by value. Directly and indirectly, it represents 3.5% of global GDP and employs 58 million people worldwide. It is generally estimated that one million air passengers generate around 3,000 jobs (ATAG and ADP, 2015). Air transport also enhances access to island economies and to particularly isolated territories (in Russia and Norway, for example). Finally, it provides emergency transport in the event of natural disasters and in war zones.[2]

MEASURES TAKEN BY MAJOR INDUSTRY PLAYERS TO COMBAT NEGATIVE IMPACTS

Although air transport brings undeniable economic and social benefits, airports are responsible for negative externalities in the form of noise and air pollution. Air transport also generates greenhouse gas emissions but these are at least ten times less than those produced by road transport and only account for 2% of global CO_2 emissions (IEA, 2015). Nonetheless, these emissions are growing and if proactive steps are not taken they will increase by 5% per year, which means they will double over the next 15 years.

1 ▸ For example, the accident rate is 30 times higher in West Africa than in the USA (World Bank, 2014).
2 ▸ For example, in 2013, more than 80 million people in 75 countries benefited from food and humanitarian aid brought in by air.

Fortunately, the sector appears increasingly willing to address its environmental, energy and climate challenges and the main players are voluntarily adopting appropriate measures. The first of these is the International Civil Aviation Organization (ICAO), a specialised UN agency based in Montreal. As an international regulator it comprises 191 member states. It issues standards and recommendations and sets targets, including environmental targets. Aircraft manufacturers are working on fuels, aircraft designs and aerodynamics as well as the energy efficiency of equipment used on-board and on construction and maintenance sites. Airlines too are increasingly looking for ways to improve their passenger load factor[3] – primarily for economic reasons, but the energy and environmental impacts of these measures are genuine. Airline companies are also opting to recycle aircraft – 90% of the chassis can currently be reused.

> “Airline companies are also opting to recycle aircraft – 90% of the chassis can currently be reused.”

Airport managers are starting to invest in more energy efficient air terminals (for example, in Italy and India) and in other environmental challenges such as waste and water management. Air navigation equipment is helping to optimise flight paths and flight sequencing, saving precious minutes of queuing and cutting down on flyovers at airports, and reducing fuel and CO_2 emissions. The contribution of the Single European Sky Air Traffic Management Research programme (SESAR) deserves a special mention. As the technology arm of the Single European Sky initiative, it has a particular focus on optimising aircraft flight paths.

DISCLAIMER

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AMBITIOUS TARGETS

On the ground, data exchange between airports cuts down on aircraft taxiing and waiting times at the end of runways. Thanks to the Airport Collaborative Decision Making (A-CDM) approach to sharing information, Roissy-Charles de Gaulle Airport has managed to cut such delays by between 10% and 20%, resulting in a significant 14,000 tonne annual reduction in CO_2 emissions. Lastly, electric aircraft traction systems also reduce both fuel consumption and emissions. In total, ground and air optimisation measures can cut energy consumption by around 10%.

Other initiatives are supporting the efforts being made by the sector's key actors to tackle the environmental and climate impacts of their activities. Airports Council International Europe (ACI Europe) for instance has set up Airport Carbon Accreditation, an airport certification programme designed to measure and reduce CO_2 emissions. To date, more than 150 airports – including some of Europe's biggest – have joined the programme, representing 65% of the Continent's air traffic. The initiative also extends beyond Europe: in Africa, airports in Enfidha (Tunisia), Abidjan (Ivory Coast) and Libreville (Gabon) have recently received accreditation – the only ones on the African continent to have achieved this. The airports with the highest traffic volumes (and therefore the highest emissions) are not yet part of the programme. →

FOCUS
AGENCE FRANÇAISE DE DÉVELOPPEMENT (AFD)

Agence Française de Développement (AFD), a public financial institution, implements policies defined by the French government. It is present on four continents through a network of 75 offices and finances and assists with projects designed to improve living conditions, support economic growth and protect the planet. In 2015, AFD invested EUR 8.3 billion in projects in developing countries and French overseas territories.

3 ▸ Between 2009 and 2014, the number of flights to and from Roissy CDG Airport in Paris fell by 12% – despite a 10% increase in passenger traffic.

ANALYSIS

The CO_2 Emissions Trading System (ETS) has been used in the civil aviation sector since 2012. Under this EU-backed scheme, airlines which exceed a certain annual emissions threshold must purchase emission allowances. This mechanism has met with some resistance and is currently confined to internal flights and covers 'only' 31 European countries. However, it is a start, and the Commission and the ICAO are working on a global emissions market for the sector.

Industry players have set themselves ambitious targets. Between 2009 and 2020 the aim is to increase global energy efficiency from 1.5% (manufacturers) to 2% (ICAO) on average each year, mostly with the help of technology and new aircraft. From 2020 on, the objective is carbon-neutral growth (net emissions) and by 2050 net emissions should only be half of what they were in 2005 **(FIGURE)**.

THE ROLE OF DEVELOPMENT FINANCE INSTITUTIONS

"On the ground, data exchange between airports cuts down on aircraft taxiing and waiting times at the end of runways."

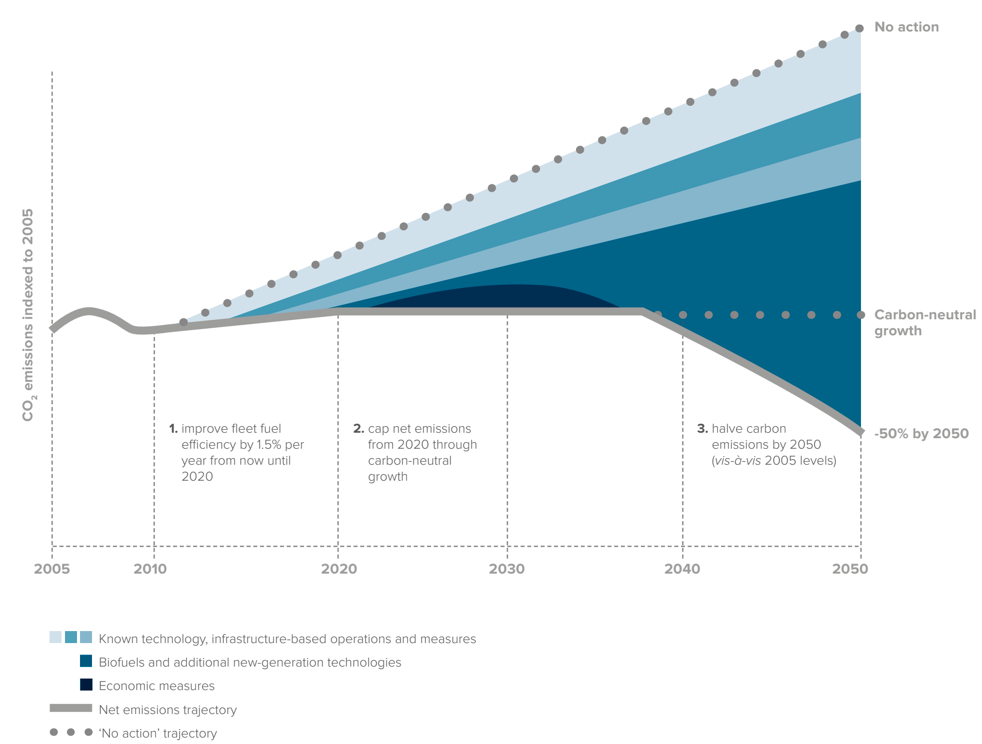
Agence Française de Développement (AFD), the group to which Proparco belongs, has been involved in the air transport sector for decades, particularly in sub-Saharan Africa and French overseas territories. Since 2009, its average annual contribution to the sector has been around EUR 120 million. The group also operates outside the French overseas territories in Tunisia, the Ivory Coast, Cameroon, Ethiopia and Mozambique *inter alia*.

Core support for the sector from development finance institutions and AFD in particular focuses on helping developers control the risks associated with environmental and climate requirements. For example, AFD is developing an ex ante analysis for estimating net CO_2 emissions generated/saved by each potential project (using ADEME's "*Bilan Carbone*" carbon audit diagnostic tool). However, these institutions also need to research new thematic/geographic initiatives that promote a more sustainable aviation sector in line with the innovations being developed by the industry itself. This is already happening on the environmental front. Existing initiatives need to be reinforced by providing support for energy audits with a view to obtaining international certification and developing action plans and investment programmes that can subsequently be funded by donors and lenders. Now that environmental, energy and climate considerations affect all sectors of activity it is necessary to reassess donor and lender intervention strategies in the air transport sector.

Despite the indisputable economic and social benefits of air transport, security and safety issues remain significant together with issues of institutional and financial governance in certain regions. In the environment, energy and climate spheres, research and development activities, experiments and investments are currently focusing on the design, construction and operation of aircraft, air traffic management and airports. By supporting technological advances in airport infrastructure and equipment, investors are helping to make this mode of transport more sustainable. ■

"Industry players have set themselves ambitious targets."

Roadmap for reducing emissions in the aviation sector



Source: ATAG, 2014

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ANALYSIS

ABIDJAN INTERNATIONAL AIRPORT

A viable concession despite the turmoil

In 1996, management of Abidjan international airport was taken over by a private operator. Although the financial equilibrium of the concession was disrupted by a series of events – not least the 2010-11 Ivorian crisis – the situation has improved markedly since the 2010s. The Airport's development is closely bound up with that of the national economy and it is currently the focus of an ambitious EUR 100 million investment programme.

Francis Brangier
CEO, Egis Airport Operation

Félix Houphouët-Boigny international airport in Abidjan was one of the first African airports to be taken over by a private operator, in this case a public-private partnership. The Marseille-Provence Chamber of Commerce and Industry (CCIMP), which managed Marseille airport at the time, joined forces with the Sofréavia airport engineering consultancy (acquired by the Egis Group in 2006). Together they founded an Ivorian entity, AÉRIA, to which the concession was awarded. Fifteen years later, in 2010, the Ivory Coast government reaffirmed its commitment to the Egis Group and the CCIMP by renewing the AÉRIA concession for a further twenty years.

As the leading economic power in French-speaking West Africa, the Ivory Coast has recorded impressive GDP growth[1] since 2011: according to the country's Economy Minister, GDP per capita increased over 20% in three years, putting the country back on a growth footing. Abidjan Airport forms part of this regional development infrastructure and since the start of the concession it has reflected general economic trends and faced some serious crises which have been overcome thanks to remarkable adaptability.

1996-2011: A PROMISING START FOLLOWED BY UNREST

In 1995, the poor state of airport installations and the need to modernise them without the availability of public funds led the Ivory Coast government to seek out a private operator capable of deploying a major investment programme. The 43% surge in traffic between 1996 and 1999 required the new operator to adjust its initial budget from CFA 16 billion to over CFA 25 billion[2] in order to upgrade all of the installations (i.e., air terminal, aprons, runways and car parks) to be able to accommodate an estimated two million passengers by the end of the 15-year concession.

1 ▸ 10.7% in 2012, 9.2% in 2013, 8.5% in 2014, 8.4% in 2015 and 8.5% forecast for 2016.
2 ▸ From EUR 24 million to EUR 37 million.

The chosen model was accepted by AÉRIA's international banking partners and backers. One such grouping included the French Development Agency (AFD), the European Investment Bank (EIB) and the West African Development Bank (WADB) which financed 50% of the project – the other half was financed out of the company's own funds. Beginning in 1996, the work was successfully completed in 2000, transforming Abidjan Airport into one of the best-equipped in West Africa. In 1999 international passenger traffic reached nearly 1.3 million, an all-time record for the airport **(FIGURE ➔)**.

However, the Airport's financial equilibrium was disrupted by a series of major events, particularly the political crisis in the Ivory Coast which began in 1999 and lasted for 12 years. The terrorist attacks on 11 September 2001 and the resulting fallout among airline companies (i.e., the financial meltdown of Sabena and Swissair, two key airlines in Abidjan) also damaged the airport, as did the collapse in 2002 of Air Afrique which had accounted for 40% of passenger activity. In 2003, passenger traffic stagnated at 700,000 and it was not until 2014 that numbers finally crept back above 1999's record levels. Throughout this period of uncertainty, it was essential that the managing authority "survived" and the quality of the relationship with the licensing authority – the Ivory Coast government – was critical to this survival. The government increased the level of passenger charges[3] and this appreciation of the financial pressures being faced by a private operator greatly helped preserve the economic and financial equilibrium of the concession as it confronted the slump in traffic triggered by these crises. The quality of the relationships with the financial backers (e.g., the agreement to renegotiate the debt in line with the resources available to the operator) and the operator's careful management of its overheads also helped the Airport to weather the storm.

2012-2016: IVORY COAST BACK ON A GROWTH FOOTING

The airport operator has clearly demonstrated its ability to weather difficult periods, having met all of its obligations despite the successive crises. The renewal of its concession in 2010 represented due recognition of its effective management and enabled the concession agreement itself to be readapted in line with the realities of the sector. New clauses provide for investment plans that may be adapted according to changing conditions.[4] These give AÉRIA flexibility in the event of a drop in traffic or a need to react to developments within the aviation sector (changes in the type of aircraft, issues with airport security, etc.). The adaptability of the public-private partnership is a significant asset in the return to growth.

After ten years of political and economic crises, the Ivory Coast is back on the path to growth and expansion. As the country's international gateway, the airport must support and reflect this growth and its modernisation must continue, with a focus on infrastructure development, expansion of its airline network and enhancement of safety and security. ➔

> "The relationship with the licensing authority – the Ivory Coast government – was critical to this survival."

FOCUS
EGIS AIRPORT OPERATION

A subsidiary of the Egis Group, Egis Airport Operation is entirely focused on airport management. It manages a network of 14 airports spread across four continents, handling more than 25 million passengers and 320 tons of freight. It holds a 35% shareholding in AÉRIA, the private company that runs Abidjan International Airport, alongside the Ivory Coast government (10%) and private shareholders (65%). The international engineering group Egis is 75% owned by Caisse des Dépôts and provides structuring and operational services in numerous sectors. With 13,000 employees, turnover was EUR 937 million in 2015.

3 ▸ Airport fees (i.e., landing fees, passenger fees, etc.) are set by official decree.
4 ▸ Reviewed every 5 years and monitored/adapted on a yearly basis.

Huge efforts are being deployed to grow national, regional and international air traffic. In 2015, the national carrier, Air Cote d'Ivoire, represented some 40% of traffic at Abidjan Airport. It mainly handles connecting flights; Abidjan is the hub (transfer point) providing access to and from West and Central Africa. Air France – the second largest carrier in volume terms – handles 16% of traffic. Air France/KLM has expanded its Paris-Abidjan service to seven flights per week, some of which use Airbus A380's. In addition Corsair has officially announced the permanent resumption of four flights a week from Paris beginning in June 2016.

One of the main objectives of Abidjan Airport is to start a service to the United States and in 2015 the airport obtained security approval from the American authorities, a vital preliminary step for flights to or from the US. Moving forward, in 2016 airworthiness certification will be granted by ANAC, the national authority recognised by the International Civil Aviation Organization. Once these approvals are in place, AÉRIA will be operating to the same standards as Western international airports.

At present, while the situation is clearly improving, AÉRIA's development remains constrained, particularly by very high airport taxes. In the competitive world of air transport, global airlines compare many different airports before opening a route, and flight taxes are a key factor in the selection process. AÉRIA directors recently met with the Ivory Coast Ministry of Transport in an effort to strike a balance acceptable to all parties. Shortly afterwards, the government made an official announcement in the Council of Ministers that there would be a reduction in the various taxes equivalent to EUR 18 per ticket.

A MID-TERM INVESTMENT PLAN

AÉRIA has made a number of short-term term investments to ensure continuing infrastructure development. The 2013 priority was to upgrade its installations to be able to accommodate the Airbus A380. In 2015, EUR 4.5 million were invested in upgrading and renovating the international departure areas. Improvements will continue in 2016 with the replacement of the baggage conveyor and enlargement of the car parks.

Traffic forecasts are in line with the airport management's objective of an estimated 2 million passengers a year by 2020 with an annual growth rate of about 5.7% in 2016-2020, rising to nearly 2.7 million by the end of the concession in 2029. Such growth will require further investment to expand capacity. Airside, more stands are needed to accommodate larger aircraft while landside the terminal building will have to be expanded. AÉRIA must also tailor its infrastructure to the requirements of the flag carrier, Air Côte d'Ivoire. Operating as an airline hub requires adaptation both on the airside and in the terminals. For example, facilitating passenger transfer from one aircraft to another requires careful flow management.

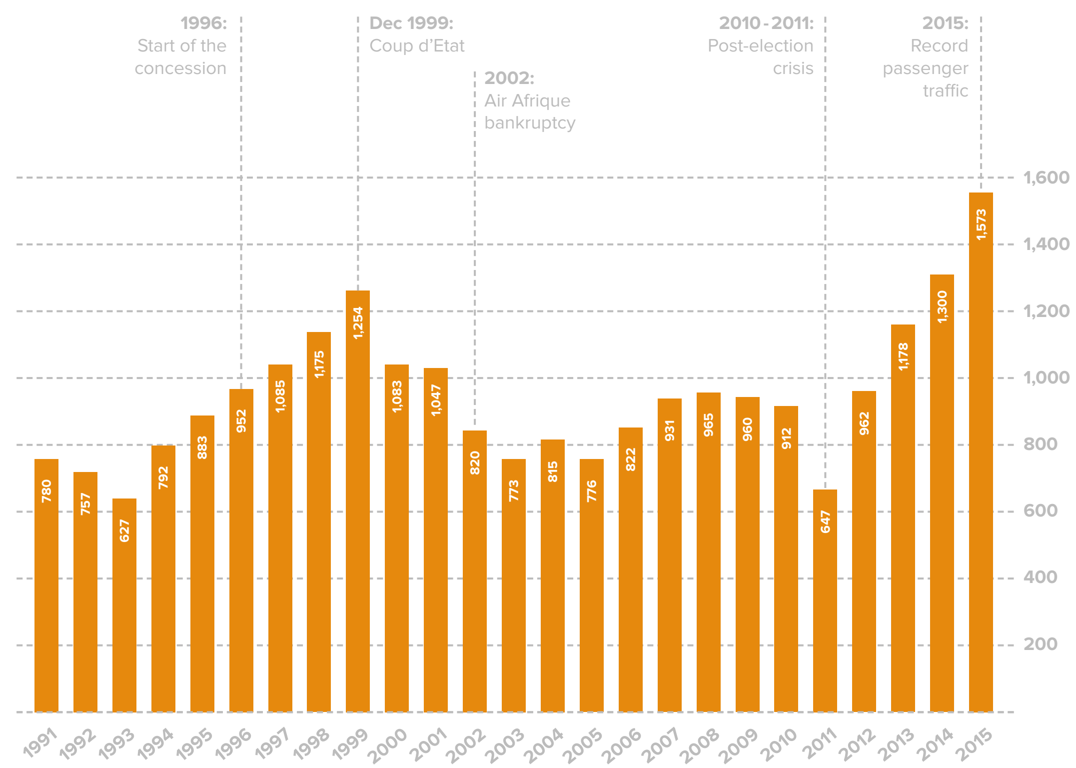
> "AÉRIA's development remains constrained, particularly by very high airport taxes."

AÉRIA's challenge is to continue to develop the airport via tailored investment plans without destabilising its finances. In total, AÉRIA has earmarked nearly EUR 100 million in investment – a significant part of which will be financed out of its own funds. Since all of these transformations are based on dynamic forecasts of the country's economic development, this investment plan necessarily includes an element of risk.

Naturally, the Company is also investing heavily in its personnel. Having an international group with the stature of Egis as stakeholder gives AÉRIA access to know-how and industry best practices that help foster the professional expertise and people skills it needs. AÉRIA has also been running an ambitious training programme for several years to enhance its skillset and boost recognition and motivation amongst the teams.

The current objectives for Abidjan International Airport are to grow and diversify its airline network, enhance safety and security and expand its infrastructure. To "future-proof" its business, AÉRIA is working with the teams at Egis to plan for the airport's *modus operandi* in 2025 when it will need to be able to handle more than 2.5 million passengers. As passenger behaviour and expectations evolve and the world becomes increasingly digitised, the infrastructure and services at the airport need to evolve accordingly and AÉRIA's role as airport operator is to ensure that this happens.

Traffic at Abidjan international airport between 1991 and 2015



Source: EGIS, 2016

PARTNERING AFRICAN AIRPORT HUBS, 3 EXAMPLES

Marie Carru
Managing Director, Proavia

Airport infrastructure is a key economic growth vector and essential to Africa's development. Vital for opening up regions with no seaboard or with limited road and rail networks, the aviation sector is remarkably economical in terms of infrastructure: one airport with a 3 km runway can provides connections to the whole world.

The development of African airport hubs is frequently hampered by a lack of adequate funding. To meet current international standards, African airports need to enhance their expertise, improve security and safety equipment and boost the efficiency of their logistics. They also need to develop and maintain the skills of the personnel who operate these facilities.

Specialists are working with African airport hubs to help meet these challenges. A number of French stakeholders, operators and engineering specialists are helping to provide a network of sustainable airports right across Africa – from Cameroon to Guinea-Conakry, Kenya and Tanzania. ■

MULTIPLE MANAGEMENT SOLUTIONS FOR AÉROPORTS DU CAMEROUN

By Jean-François Guitard, Development Manager, Aéroports de la Côte d'Azur

The Aéroports de la Côte d'Azur group provides training and advisory and management services via its airport engineering subsidiary, Nice Airport Management (NAMA). NAMA is particularly active in Cameroon where it works with Aéroports du Cameroun (ADC), a company with a majority public shareholding that manages the country's seven major airports. Since 2011, ADC has availed of the expertise of several European airport managers. NAMA has trained over 80 airport executives and also provides consulting services. For example, it has assisted ADC in defining its marketing strategy for 2012–2017 and has been working on a comprehensive airline development strategy since 2015. The Aéroports de Lyon group is also partnering ADC's project to upgrade the runway at Douala Airport and redevelop the airport terminal.

CASE STUDY

> "One airport with a 3 km runway can provides connections to the whole world."

EGIS TECHNICAL ASSISTANCE AT NAIROBI AIRPORT

By Frédéric Nicolon, Executive Vice President, Egis Avia

With over 6 million passengers each year, Nairobi Airport is one of Africa's 10 busiest airports. It is a major national and regional hub and its infrastructure also generates socio-economic benefits. Egis Avia – one of Europe's leading air transport consulting and engineering firms – worked with Kenya Airports Authority (KAA) from 2010 to 2015. With funding from the Agence Française de Développement and the European Investment Bank, Egis provided technical and management assistance for an airport expansion project. This included training staff to operate the infrastructure over the long term. As well as airport planning and infrastructure engineering, this work also involved awareness-raising initiatives, training and the dissemination of best practices with a focus on security, social and environmental issues, the airport's financial viability and the need for accountable and effective governance.

ADP IN TANZANIA AND GUINEA-CONAKRY

By Frédéric Thénevin, Business Development Director, Africa, ADP Ingénierie

With funding from Agence Française de Développement (AFD), ADP Ingénierie (a subsidiary of Aéroports de Paris (ADP) group) conducted studies for the renovation and expansion of the Dar es Salaam airport terminal on behalf of the Tanzania Airports Authority. ADP Management (another ADP subsidiary), is a shareholder in SOGEAC, the company that operates Conakry Airport. Using this terminal's operating revenues, renovation work commenced in 2013. Local stakeholders conducted feasibility and impact studies and an economically viable project was drawn up, backed by a solid financing framework. The project management works phase must now offer guarantees to contracting authorities and financial backers that key objectives, such as keeping to schedules and cost requirements, will be met. This will guarantee the airport's long-term economic, environmental, social and financial viability, and consequently the repayment of loans.

FOCUS
PROAVIA

Established in 1976 as a joint initiative between the French Civil Aviation Authority and equipment manufacturers, Proavia brings together 58 French companies specialising in airport and air traffic control technology and services. Proavia is a non-profit professional association that aims to promote the expertise of French airport equipment manufacturers and consultants internationally. It also keeps its members abreast of market trends.

LESSONS LEARNED FROM THIS ISSUE

CLÉLIE NALLET, DEPUTY EDITOR

Air transport is a crucial development driver. It brings vital economic and social benefits, including regional integration, and has major knock-on effects on job creation, trade and tourism. It transports three billion passengers each year and a third of the world's freight, employs 58 million people worldwide and accounts for 3.5% of GDP either directly or indirectly. The aviation sector is even more vital in Africa where there is a widespread shortage of land transport infrastructure, i.e., road and rail networks. Air transport does not require huge facilities and constitutes an excellent means of transporting passengers and freight at a relatively low cost. An airport with a 3 km runway can connect a region with the rest of the world. Air transport boosts social and economic links with other continents and other parts of Africa. It is also of real benefit to local development. For example, a national network of secondary airports could provide connections to isolated rural areas.

> "Air transport boosts social and economic links."

However, the African aviation sector is not currently fulfilling its potential. Although passenger traffic has increased by 5% a year over the past 15 years, it accounts for only 3% of global traffic and the increase relates primarily to intercontinental journeys. The growth in air traffic is considerably greater in Eastern and Southern Africa where the three main African hubs are located (i.e., in Addis Ababa, Nairobi and Johannesburg) than in Western and Central Africa, where air transport is very rudimentary, especially following the disappearance of a number of national and regional airlines (Air Afrique, Air Gabon, Ghana Airways and Nigerian Airways). Trips are still expensive, the areas served are limited and there are not enough intra-African connections. The sector is hampered by financial and political problems. Governments have dragged their feet over liberalising African skies in a bid to protect their national airlines, thus reducing connectivity and the number of routes on offer and pushing up prices. Particularly high airport taxes make the costs higher still. Access to appropriate financing is another major challenge for this capital-intensive sector. Airlines find it difficult to access the resources they need to finance their fleets over the long term. Most local banks do not have sufficient funds and the leasing solutions and export credit agencies used elsewhere are ill-suited to the African context.

Although the challenges are considerable, the sector has enormous untapped potential and the situation is starting to improve: the case studies and analyses featured in this issue offer huge encouragement in this regard. For example, in Côte d'Ivoire, a public–private partnership is helping an airport to overcome a series of political and economic crises. In Ethiopia, thanks in part to reciprocal liberalisation agreements, the national airline has become one of the biggest on the continent. Elsewhere, the tenacity of one low-cost airline is carving open new intra-African routes and making them more accessible. Industry associations are partnering emerging African airlines and airports by helping to develop their expertise and know-how. Furthermore, development finance institutions are well placed to respond to the needs of a sector that offers significant socio-economic benefits but struggles to find lenders.

Improving the coverage of Africa's air transport network requires commitment from public and private, international and local stakeholders. The gradual opening up of Africa's skies offers real development opportunities. An agreement to open up the airspace between South Africa and Kenya generated a 69% increase in passenger traffic. Authorisation for low-cost operators to fly between South Africa and Zambia led to lower fares and a 38% rise in passenger traffic. Nevertheless, as both a driver – and consequence – of development on the continent, the African aviation sector will need to be able to carry more passengers on more routes, especially within Africa. ■

> "The African aviation sector will need to be able to carry more passengers on more routes."

PS&D

Since 2009, Proparco has coordinated the Private Sector & Development (PS&D) initiative, examining the role of the private sector in southern countries. Issued as a quarterly themed magazine and specialist blog, the PS&D initiative presents the ideas and experiences of researchers and actors in the private sector who are bringing true added value to the development of these countries.

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