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January, 2025

AFRICA

The Inspiring Growth Of African Airlines



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Do Planes
Fly**



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Dubai Airshow

17 - 21 November 2025
DWC, Dubai Airshow Site



The future is here



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AFRICA:

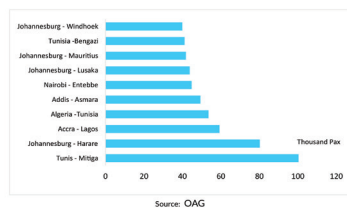
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Top 10 Intra - African routes by passengers carried Q1 2024 (OAG estimations)
Figure 12: Intra-African routes ranking



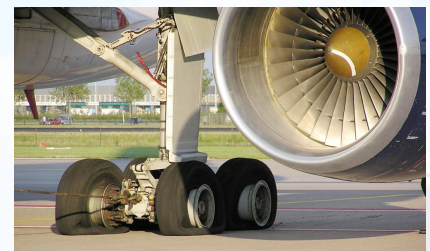
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Entebbe Airways

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PRESIDENT MUSEVENI LAUNCHES THE UPGRADE OF THE RUNWAY, TAXIWAY, AND APRON AT JINJA AIRPORT



The President of Uganda, H.E Yoweri Kaguta Museveni, flagged-off works for the upgrade of the runway, taxiway, and apron at Jinja Aerodrome on Friday, January 24, 2025.

UCAA Contracted M/S GOFA Investments Ltd and MG Engineers (Joint Venture) to undertake the works. The upgrade is part of the implementation of the Civil Aviation Master plan aimed at modernizing regional aerodromes to promote tourism and trade.

On completion, the tarmacked runway will be 30 meters wide by 1,710 meters long, with a runway strip and Runway End Safety Area (RESA) of 100 meters (on both sides).

The upgrade will also deliver a tarmacked parallel taxiway of 19 meters by 1,050 meters long and a bigger tarmacked apron of 7,000 square meters, which is planned to accommodate six aircrafts of LET 410 size. The aerodrome currently has a gravel runway of 1,680 meters and a small aircraft parking apron.

Besides tourism and trade, the aerodrome houses state-

of-the-art Uganda Police Air Wing hangar for aircraft maintenance and Vine Air Flight Academy for training pilots and other aviation personnel.

Speaking at the event, the First Deputy Prime Minister and Minister for East African Community Affairs, Rt. Hon. Rebecca Kadaga, informed the President that the Ministry of Works and Transport and UCAA have a request to be allocated part of the land that belongs to UPDF on the eastern side of the Aerodrome (approximately 10 hectares) and National Forestry Authority in approach to enable future upgrade of the airport to a longer runway and other facilities.

In response, the President noted that it was logical to develop Jinja into an international airport with a runway of at least 3.6 kilometres.

"If the nearby land is Government land, it is easy. We are going to move on this one," he said.

The function was also attended by the Minister of State for Works and Transport (Transport), Hon. Fred Byamukama, among other officials.

IN THE NEWS

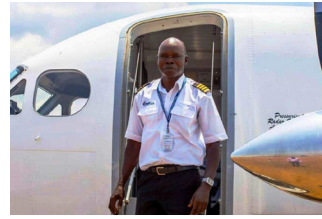
Two Ugandan "Eagle Air" Pilots Die in a plane crash in South Sudan

Uganda has lost 2 pilots and 16 people who were aboard Eagle Air's Beech Craft 1900D while departing an oil field in Unity State in South Sudan. The two pilots included Captain Peter Amua from Amolatar District and the Co-pilot Emmanuel Wiri Drake.

Gatwech Biphal, Unity State Information Minister noted that 21 people were on board and among those, 18 people were confirmed dead with only 3 people surviving including one Indian and 2 South Sudanese.

Mr. Gatwech Biphal confirmed that initial investigations into the accident point to mechanical errors but further investigations are ongoing to determine the exact cause of the accident.

Gatwech went ahead to express his regret of the incident and promised that thorough investigations would be carried out to establish the exact cause of the accident. Mr. Gatwech condoled with the family of all the deceased and regretted the incident. Commenting on the incident, the President of Uganda



Captain Peter Amua



CO-Pilot Emmanuel Wiri Drake

Professional Pilots' Association Captain Aziz Sentamu noted that the Ugandan Aviation community is saddened by the loss of two highly experienced pilots.

Captain Peter Amua worked with several aviation companies in Uganda, Kenya, Somalia and Nigeria.

Captain Amua was Uganda Civil Aviation Authority's designated flight examiner, chief flight instructor at East African Civil Aviation Academy in Soroti and also acted as

chief pilot for Bar Aviation.

Captain Amua taught many pilots in Uganda and beyond and was due to retire. 1st officer Emmanuel Wiri Drake was a senior 1st officer on the LTE 401 and Beechcraft 1900D.

The two distinguished pilots were known for professionalism, and adherence to SOPs in the aviation field. The loss of the two distinguished pilots has left a big dent in Uganda's aviation industry and will both be greatly missed.

Ethiopian የኢትዮጵያ Inaugurates Wako Gutu Airport Terminal



Ethiopian Airlines Group has inaugurated the newly built Wako Gutu Airport Terminal at Bale Robe.

The new state of the art airport terminal is aimed at advancing the socio-economic and cultural interrelation between the domestic regions and beyond providing seamless domestic air transportation services.

During the inauguration, Ethiopian Airlines Group CEO Mesfin Tasew noted that as a group, they're delighted to announce the completion of the terminal project, which brings an enhanced travel experience to passengers flying to and from this destination.

The commitment to improving the airport experience across the domestic network drives to invest in upgrades and renovations like this. Mr. Tasew further noted that the group takes great pride in delivering this state-of-the-art facility and look forward to offering the passengers an elevated level of comfort and convenience during travel.



Launches Direct Flights between Riyadh and Entebbe



Flynas, Saudi Arabia's joint stock low cost airline has launched direct flights between Riyadh and Entebbe. The inaugural flight landed at Entebbe International Airport at 0330 hours and departed at 0430 hours on Thursday, January 16, 2025.

An inauguration celebration was held at King Khalid

International Airport (KKIA) in Riyadh, attended by representatives from flynas and Riyadh Airports Company.

In a statement released by flynas, the company said they were delighted to celebrate launching weekly direct flights between Riyadh and Entebbe in Uganda flying deeper into Africa in line with flynas' growth and expansion plan and the national objectives in the aviation sector.

The flights will be operated on the new route between Riyadh and Entebbe as of January 15, 2025, further expanding the leading LCC reach in the African market, in line with flynas' growth and expansion plan, launched under the title "We Connect the World to the Kingdom," in parallel.

With the objectives of the National Civil Aviation Strategy to enable national air carriers to contribute to connecting KSA with 250 International destinations and to accommodate 330 million passengers and to host 150 million tourists yearly by 2030 and the objectives of the Pilgrims Experience Program (PEP) to facilitate access to the Two Holy Mosques.

Flynas' inaugural flight to Entebbe was operated by Airbus 320 neo and was welcomed with a water cannon salute. Flynas will operate three weekly flights to Entebbe every Monday, Thursday, and Saturday.

Kuwaiti's Airliner, Jazeera Airways plans to purchase six Airbus A320 aircraft, as part of its ongoing transformation and strategic growth agenda.

The transition from leased to owned aircraft is aimed at reducing unit costs and mitigating supply chain challenges that have impacted the aviation industry, including delays in aircraft deliveries.

Jazeera Airways plans to expand its network of routes, introduce enhanced in-flight services, and leverage cutting-edge technologies to elevate the overall passenger experience as part of its transformation.

In his statement, Jazeera Airways chairman Mr. Marwan Boodai noted that the decision to invest in six Airbus A320 aircraft reflects the company's forward-thinking approach to fleet management and transformation.

He re-emphasized that by building a balance between leased and owned aircraft, they're reinforcing operational resilience while ensuring maintenance of one of the most cost-efficient models in the region.

Marwan further noted that the acquisition also



To Purchase Six Airbus A320 Aircraft



highlights the company's commitment to enhancing passenger experience, improving operational efficiency, and expanding reach as the company transforms into a more sustainable and innovative airline.



Announces Record Growth in Passenger Services

- Chapman Freeborn saw over 100% growth in its Middle East passenger footprint in 2024, fueled by rising demand from corporate clients, celebrities, and high-net-worth individuals.
- Chapman Freeborn will mark its debut at MEBAE 2024, reinforcing its status as a key player in the Middle East's private aviation market and highlighting its future vision.

Chapman Freeborn, a global leader in private aviation solutions marks a milestone year with over 100% growth



in its passenger footprint across the Middle East. A key component of this remarkable increase was an upsurge in demand from corporate travelers, particularly in the UAE and Saudi Arabia. The region's thriving economy, coupled with the increasing popularity of luxury travel and seamless connectivity to global destinations, played a pivotal role in driving this growth.

With the optimism that such momentum will continue in 2025, this achievement underscores the company's exceptional performance in 2024.

As the company celebrates record growth in passenger services and the expansion of its footprint in the Middle East, MEBAE provides the ideal platform for Chapman Freeborn to connect with key industry stakeholders, corporate decision-makers, and global business travelers.

Commitment to sustainability

Chapman Freeborn emphasizes its commitment to sustainability, actively contributing to a greener future for the aviation industry. The company is exploring the integration of Sustainable Aviation Fuel (SAF) and offering clients carbon offset programs to significantly reduce emissions.

Tailored sustainability initiatives empower clients to track and minimize their carbon footprint while making eco-conscious travel decisions.

In addition, Chapman Freeborn is embedding sustainable practices into its operations by optimizing flight routes, collaborating with environmentally responsible FBOs, and embracing innovations such as electric and hybrid-electric aircraft, which are poised to revolutionize short-haul flights. These efforts underscore the company's dedication to aligning luxury travel with environmental responsibility.





2025



AEROAFRICA
CONSOLIDATING AFRICA



Evans Kimani

The year 2025 will see Africa and Middle East hosting some of the most exciting and premiere Aviation events. Below, we highlight some of this year's most trending Aviation Events for Middle East and Africa.

1. Aviation week Africa; 01-04 April 2025 at City of Livingstone, Zambia

Aviation Week Africa, is the continent's premier aviation industry event, will return for its 2025 edition from 2nd to 5th April 2025 in the historic city of Livingstone, Zambia. This highly anticipated summit will bring together global leaders, key stakeholders, and innovators to shape the future of African aviation.

2. Airport show Dubai; 06-08 May 2025 at UAE, Dubai

The Airport Show will bring together the industry's foremost airport suppliers and service providers, as well as aviation industry leaders and regional decision-makers, to showcase the most recent innovations and technologies.

From 6 – 8 May 2025, the Airport Show will welcome exhibitors from all over the world for three days of unparalleled networking and business opportunities at the Airport Show and its co-located events, the ATC Forum, Airport Security Middle East, and the Global Airport Leaders' Forum.





3. African Aviation Safety & Operations Summit; 13-14 May 2025 at Kigali, Rwanda

African Aviation Safety and Operations Summit aims at promoting and enhancing the safety level in the African region and share operational best practices. Slated for 13th to 14th May 2024 in Kigali – Rwanda, the event will play a crucial role in continuously improving safety and operational processes, as they enable the sharing of relevant information and strengthen safety culture in the civil aviation industry.

The summit will promote collaboration and knowledge exchange by bringing together experts and stakeholders, driving efforts to make aviation safer for all involved.

4. Aviadev Africa; 11-13 June 2025 at Zanzibar Airport, Tanzania

Aviadev Africa 2025 will bring together airports, airlines, tourism authorities, governments and industry suppliers, offering attendees the ability to pre-arrange meetings, learn from industry peers and make those important connections. This year's event will be held at the prestigious Golden Tulip Zanzibar Airport, Zanzibar Tanzania from 11th to 13th June 2025.

5. Aero SA; 25-27 June 2025 at Lanseria International Airport- Pretoria, South Africa

AERO South Africa will host its fifth edition on 25-27 June 2025 at Lanseria International Airport. As Southern Africa's premier event for the General Aviation industry, AERO South Africa remains the ultimate platform to showcase the very best that this sector has to offer. Organized by Messe Frankfurt South Africa in partnership with fairnamic GmbH, the joint venture of Messe Frankfurt and Messe Friedrichshafen, AERO South Africa continues to gather momentum.

AERO South Africa, allows for aircraft fly-ins, demo flights, and an immersive experience for serious prospective buyers. It's an excellent opportunity for exhibitors to showcase their products and for attendees from across the country to conveniently attend the event.

6. 4th IMDEC; 08-09 July 2025 at Accra, Ghana

The 4th Annual International Maritime Defence Exhibition & Conference (IMDEC 2025), hosted under the patronage



of the Ghana Navy, will play a critical role in augmenting the maritime defence initiatives for the Gulf of Guinea and the wider African continent. By bringing together African and international navies as well as key stakeholder bodies, IMDEC 2025 will continue to serve as a platform for fostering cooperation and sharing best practices. This year's Conference will be held from July 8, 2025 to July 9, 2025, in Accra, Ghana.

7. Aviation Africa; 04-05 September 2025 at Kigali, Rwanda

Aviation Africa, Africa's largest annual summit & exhibition for Airlines, CAA's, Airports and Stakeholders & Suppliers will be held from the 4th to 5th September 2025 at Radisson Blue Hotel and convention Center in Kigali- Rwanda.

The event will be co-organized by Times Aerospace Events and the Union des Gestionnaires d'Aéroports d'Afrique Centrale et de l'Ouest (UGAACO), with Rwanda Civil Aviation Authority (RCAA) and Rwanda Airports Company (RAC) as co-hosts.

8. Dubai Airshow; 17-21 November 2025 at Dubai World Central, UAE- Dubai

Dubai Airshow, The world's most exciting and aerospace event will be held from 17th to 21st November 2025 at Dubai World Central (DWC), Dubai Airshow site in Dubai Held under the patronage of His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai.

9. 57th AFRAA AGM Summit; 30 November-02 December 2025 at Luanda, Angola.

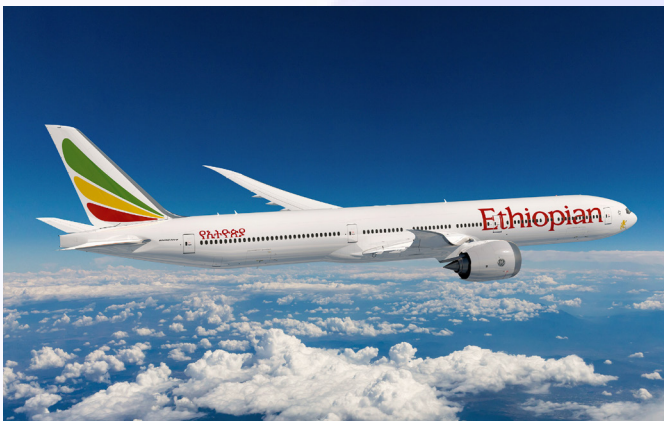
The 57th AFRAA Annual General Meeting will be held in Luanda, Angola from 30th November to 02nd December 2025 with TAAG Angola Airlines as the official facilitator. AFRAA AGA, is Africa's Biggest Airline CEOs' Conference.



THE INSPIRING GROWTH OF AFRICA AIRLINES

An Emerging Market with Enormous Potential

Evans Kimani



The African airline industry is undergoing a period of dynamic growth, showing a resilience that reflects the region's increasing connectivity and rising demand for air travel. While challenges remain, the progress made over the past decade underscores Africa's potential to establish a competitive position in the global aviation sector.

Market Growth: A Resilient Recovery and Promising Future
Since the pandemic, the African aviation market has rebounded with impressive momentum. This growth is projected to continue, driven by a mix of expanding passenger numbers, new route development, and substantial investments in airport infrastructure.

The International Air Transport Association (IATA) forecasts an annual growth rate of about 5% for African airlines, underscored by an expanding middle class and increased tourism. Despite rising operational costs and regulatory hurdles, the African airline market's fundamentals remain strong, with air travel demand set to reach new heights over the coming decade.

Passenger demand has surged across the continent, projected to reach 400 million by 2035, a sharp increase



from the 80 million passengers recorded in 2019. Key hubs, such as Johannesburg, Nairobi, and Lagos, have experienced significant upticks in passenger traffic, supported by the rise in both business and leisure travel.

Additionally, airlines have launched new routes to meet demand. For example, recent expansions by major airlines, such as Air France, have opened direct flights from Europe to various African capitals, strengthening Africa's connections with the rest of the world.

Load Factors and Regional Highlights

Load factor trends—indicating the percentage of available seating capacity filled—are also encouraging. For 2024, African airlines are projected to maintain load factors between 77-80%, up from previous years and indicative of efficient capacity management in high-demand regions.

- **East Africa:** Regional players like Ethiopian Airlines and Kenya Airways continue to drive high load factors (78-82%), supported by robust international and regional routes.
- **West Africa:** Load factors in West African markets are trending around 75-78%, reflecting rising intra-continental connectivity and growing tourism.
- **Southern Africa:** Airlines such as South African Airways are anticipated to reach load factors of around 74-77%, benefiting from the resurgence in both business and leisure travel.

Infrastructure Development: Paving the Way for Expansion
Recognizing the vital role of infrastructure, several African governments are committing resources toward expanding airport capacities and enhancing air traffic control systems.

For instance, Ethiopia and Kenya have undertaken significant expansions at Addis Ababa Bole International and Jomo Kenyatta International Airport, respectively. A strong focus on public-private partnerships is transforming airports into modern hubs that cater to growing passenger volumes while providing better service quality.

However, infrastructure improvements are uneven across the continent. Some countries face funding constraints and capacity challenges, creating disparities in



connectivity and operational efficiency. Challenges: Navigating Regulatory and Operational Hurdles

The African aviation sector faces several unique challenges:

- **Regulatory Complexity:** Diverse regulatory environments can hinder market access and limit airlines' operational flexibility. A continent-wide multilateral traffic rights regime remains an aspirational goal.
- **High Costs:** Fuel prices, taxes, and operational expenses are relatively high in Africa, posing profitability challenges for many airlines.
- **Profitability Constraints:** Though the region's collective profit for 2024 is projected at \$100 million, translating to \$0.90 per passenger, this is well below the global benchmark. Profit margins remain thin, underscoring the need for more efficient cost structures.

Economic and Social Benefits of a Thriving Aviation Sector
Beyond its business implications, the growth of African aviation holds significant economic and social promise.

A stronger aviation sector can accelerate regional development by connecting people, driving tourism, and fostering economic growth. According to IATA, Africa's airline industry is poised to contribute meaningfully to the continent's social and economic development through improved connectivity, though sustained policy support is essential to overcome the regulatory, infrastructural, and cost-related challenges.

The growth of the airline industry in Africa represents both an opportunity and a call for collaboration among stakeholders. By investing in infrastructure, navigating regulatory complexities, and addressing cost constraints, Africa's aviation sector can unlock its vast potential, bridging nations and enhancing socio-economic outcomes.

As this industry continues to evolve, AviaPro Consulting remains committed to supporting Africa's journey toward becoming a leading force in global aviation, delivering strategic solutions that drive sustainable growth and connectivity across the continent.



African Airports Current Trend Setters



Harriet James

Africa is an emerging hub for air travel connecting to the world. With her young population and growing middle-class, Africa is poised to become a global aviation power house. In this article, we look at African airports that are setting trend in areas of green technology, Artificial Intelligence and setting trend in customer service and handling.

a) Africa's Green Airport; George Airport- South Africa

When it comes to "Green Airports" on the continent, South Africa is taking the lead so far with three solar-powered domestic airports and another three expected by end of 2017.

George Airport (IATA: GRJ, ICAO: FAGG) is an airport located in George, Western Cape, South Africa. It was formerly known as P. W. Botha Airport, named after the state president who lived in this part of the country. This airport was originally built in 1977 as an exact replica of the Keetmanshoop Airport in Namibia, but since its



expansion and renovation, it now looks completely different. George Airport has won the award for Africa's best airport in the category under two million passengers per year six times; the last time was in 2017. The award is given by Airports Council International (ACI). With an annual handling capacity of about 700,000 passengers was used by Airports Company South Africa as a test case.

b) Africa's most Sustainable Airport; Félix-Houphouët-Boigny International Airport, Abidjan- Ivory Coast.

Félix-Houphouët-Boigny International Airport in Abidjan, Ivory Coast, successfully upgraded to Level 4+ Transition within the Airport Carbon Accreditation programme, and become the first airport in Africa to reach this advanced level of carbon management.

To achieve Level 4+ Transition, the airport established an absolute emissions reduction target that covers all Scope 1 and 2 emissions, aligning its long-term carbon reduction strategy with the IPCC's 2°C pathway. Additionally, it commits to offsetting any remaining Scope 1 and 2 emissions using internationally recognized carbon credits.

c) Africa's Cleanest Airport; Cape town International Airport- South Africa

According to SkyTrax awards 2024, Cape Town International Airport was voted as the cleanest airport in Africa. Cape Town International Airport is Africa's 3rd largest airport. It is also Africa's premier tourist and VIP destination and has established a reputation as Africa's premier international award-winning airport, consistently



performing among the best in the world for service in its category.

d) Africa's most connected Airport: Johannesburg's O.R. Tambo International Airport- South Africa

According to the OAG Megahubs 2024 report, Johannesburg's O.R. Tambo International Airport has been ranked as the most connected airport in Africa for the third consecutive year. It is the only African airport among the top 50 most connected airports globally, placing 40th—down slightly from 39th in the previous year.

e) Africa's Safest Airport; Kotoka International Airport – Ghana

The Kotoka International Airport (KIA) in Ghana has been declared the safest airport in Africa after winning the Airports Council International (ACI) Safety Award last week in Mauritius. The ACI Safety Awards, recognizing the achievements of airports of different sizes across Africa, were presented to those airports that had demonstrated their commitment to providing excellence in safety and compliance practices.

Source: Skytrax



REVITALIZING AFRICAN AVIATION

*A Vision For Connectivity
Growth And Sustainability*



Adefunke Adeyemi, Secretary General of the African Civil Aviation Commission (AFCAC), outlined an ambitious and transformative vision for African aviation. Tasked with promoting safety, security, liberalization, environmental protection and overall sustainability across the continent, Adeyemi's insights highlight the challenges and opportunities that define the sector's future.

As the specialised agency of the African Union (AU) for civil aviation, AFCAC's mandate is to co-ordinate and implement policies and projects that enhance the aviation sector across all 55 African countries. The commission's approach is continental, aiming to address key areas such as safety, security, environmental protection, connectivity and sustainable aviation.

The Yamoussoukro Decision and the Single African Air Transport Market (SAATM) AFCAC is also responsible for implementing the Yamoussoukro Decision and the Single African Air Transport Market (SAATM). The Yamoussoukro Decision is a framework agreement designed to enhance connectivity by granting market access between African states for airlines, thereby reducing fragmentation and increasing connectivity.

The average age of Africa is 19 and the average age of aviation in Africa is 59. "This is important for Africa because Africa is bigger than what you see on the map. It's 13 million square miles and that means that you can fit the USA, China, Europe, Mexico and many other countries into the landmass that is Africa. In addition to that, we do not have alternatives in terms of road transport that covers the entire continent or rail transportation. Of course, sea transportation or waterways are not as integrated because many parts of Africa are landlocked, so the short to medium term solution for integrating the continent is air transport. That's why it is the number one flagship project

of the African Union, who is our principal organization in terms integration projects for Africa, which is one of its objectives," said Adefunke.

Addressing Africa's aviation market share

Despite being home to 12% of the world's population, Africa accounts for only 2% of the global air traffic market. Adeyemi attributes this discrepancy to several factors, including limited market access, high operational costs and a lack of infrastructure. Despite these challenges, Africans have a growing propensity to travel.

"There is and there's a growing middle class and a lot more people want to travel, but even with that, only 15% of the African population fly. Price is a real factor and most people do not engage because it is too expensive for them, and that shouldn't be the case because aviation really is a necessity for Africa," added Adefunke.

Efforts to liberalise and improve air links

AFCAC is working on several initiatives to liberalise and improve air links within Africa. One of the key projects is the Pilot Implementation Scheme of SAATM (SAATM PIP), which focuses on a group of 20 countries that are ready to accelerate the implementation of the Single African Air Transport Market.

"The idea is to take those countries that are ready and are willing to proceed with accelerating the implementation of the YD to move forward with them," Adeyemi explained. "It's an inclusive initiative because we start in phases, we take the first batch who are ready, and then we proceed with others. Given the fact that it's taken 35 years for us to implement the YD in full, I think taking this approach is a good way of doing it."

Visa regimes and non-physical barriers

One significant barrier to connectivity is the visa regime.



Many African countries require visas for other African nationals, which hampers the free movement of people. AFCAC is advocating for more open visa regimes to facilitate easier travel across the continent.

“Having an open visa regime is really important,” said Adeyemi. “We also want to reduce the impediments to travel, so the non-physical barriers – things like visas, high cost of operations and standardising and harmonising as much as possible. AFCAC has a target for this as well to increase connectivity on the fifth freedom basis from 15% in 2022 to 30% in 2025. What do I mean by fifth freedom? It is the ability of an airline to move from its base in one city to another city to pick up and drop off passengers and then to go onward to another city and then come all the way back doing the same thing. That’s really important for Africa because of the size, so the ability to be able to go from city to city on one ticket is really important to be able to bridge this gap of connectivity and reduce the fragmentation.”

Safety and security improvements

Safety and security are paramount in aviation, and Africa has made significant strides in these areas over the past decade. The Abuja Safety Targets, established in 2012, have been instrumental in improving safety standards across the continent.

The approach AFCAC is taking is targeting the states that have a real need in terms of improving their safety in specific elements and providing technical assistance and capacity to support those states.

Sustainability initiatives

Sustainability is another critical focus area for AFCAC. The commission is working on several initiatives, including the development, production and deployment (DPD) of Sustainable Aviation Fuel (SAF) in Africa. This initiative aims to involve Africa in the global effort to reduce aviation’s carbon footprint.

Engaging the next generation

AFCAC is also focused on attracting the next generation of aviation professionals. The African Women and Youth

in Aviation (AWAYA) initiative aims to empower young people and women to pursue careers in aviation. “With AWAYA initiative, we have areas of intervention from mentorship to sponsorship to specific actions that we’re taking to excite the younger generation and so on and so forth.”

“We need to really ensure that more people come in,” Adeyemi emphasised. “The average age of Africa is 19 and the average age of aviation in Africa is 59. We need to bridge this gap.”

Improving passenger experience

Improving the passenger experience is another priority for AFCAC. The commission is working on establishing a network of focal points at key airports to address consumer protection issues and enhance the overall passenger experience.

“Consumer protection is one of the annexes and one of the regulatory instruments of the YD and the SAATM,” Adeyemi said. “We are focusing on setting up some kind of network of focal points in terms of the passenger experience and consumer protection issues across Africa, we’ve made a call for African states to support having some presence at most airports in Africa.”

In addition, we’ve recently established a dispute settlement mechanism, which is in Senegal where we’re based. The idea is that the different players including passengers, but also airlines and governments and so on, can bring it to us if there is a dispute around anything to do with the YD or SAATM. The approach will be through conciliation mediation or as the last resort arbitration. The whole idea is that there is a meeting of minds between two parties and these two parties are trying to seek a resolution the matter so that we can move forward.”

Overcoming fragmentation

One of the biggest challenges facing African aviation is fragmentation. AFCAC is working on various fronts to overcome this issue and build economies of scale that can support meaningful air transport across the continent. “The opportunity is the SAATM, this is our main developmental imperative as an African continent. If we’re able to crack this, then a lot of things will follow in the short to medium-term.”

Of course, there are other areas of development for the continent, but if we’re able to crack this, then the issue of integration and connectivity would really be changed. And that would translate to not just travel but trade, but tourism and so on and so forth.”

Looking ahead As AFCAC continues to implement its ambitious plans, the future of African aviation looks promising. By addressing key challenges and leveraging opportunities, the commission aims to create a more connected, sustainable and prosperous aviation sector for Africa.



MOSHOESHOE International Airport

The Tiny African Airport

Africa also has many smaller airports, no less important to the continent's general transport infrastructure. Perhaps one of the world's smallest airports is located in Lesotho, a high-altitude landlocked kingdom encircled by South Africa.

Lesotho's international airport is named Moshoeshoe I, after the country's first king who died at the ripe old age of 84 in 1870.

The airport is located near the town of Maseru, approximately 20 kilometres south of Maseru, the capital of Lesotho. It has two passenger terminals, as well as one for cargo and two runways, the longest of which measures 10476 × 148 feet.

As the country has had no official state airline of its own since 1997, international flights are mainly operated by South African Airways to Johannesburg.

Africa has many large international airports, catering to millions of travellers from all over the world. The continent's biggest airport is Tambo International Airport in South Africa.

The air hub is not only the largest in Africa in terms of passenger traffic but also one of the busiest airports

globally. Serving Johannesburg, South Africa's economic capital, it handles over 21 million passengers annually.

As the country has had no official state airline of its own since 1997, international flights are mainly operated by South African Airways to Johannesburg. Domestic flights are operated by Mission Aviation Fellowship and Mountain Airways.

The airport scores three out of five in a customer satisfaction survey, receiving some mixed reviews. Sebastian H. wrote: "The Airport is small, which of course is not a problem.

"However, the stores at the Airport (Vodacom, Banks, etc.) are largely abandoned, even if a flight comes in. "You may or may not be lucky and be able to buy a sim card at the AP. Service in this area basically non-existent.

"Furthermore, the main building could do with a bit of TLC, some paint here and there and the rotten ceiling tiles could be replaced...maybe. The staff is generally friendly though."

TOP 10 INTRA AFRICAN AIR ROUTES 2024

Evans Kimani

The air passenger traffic in Africa has experienced significant growth over the past few decades, driven by various factors such as economic development, population growth, and increasing connectivity.

A busy air route is a critical component of the aviation industry and is characterized by high demand and frequent flights. Several factors contribute to making an air route busy, which include demand and supply-side factors.

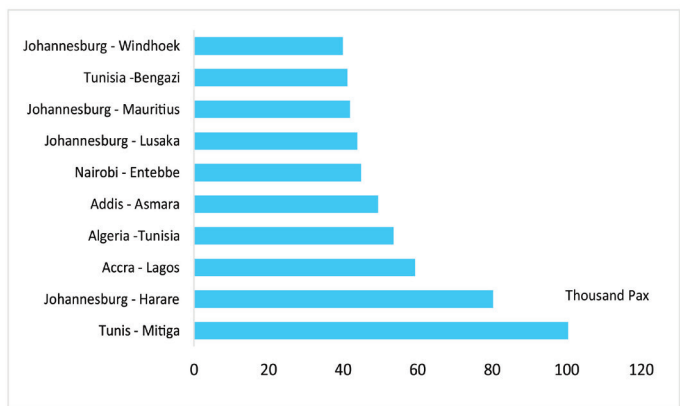
According to the African Airlines Association's (AFRAA) 2024 Air Traffic Report, African airlines recorded more international traffic in the first quarter of 2024 - around 33% of the total traffic. A common thread among busy air routes is the presence of at least one of the following factors: significant trade activity, thriving tourism opportunities, or a strategic location as an arrival port for onward travel to another popular destination.

According to the AFRAA air traffic report for Q1, 2024, the following routes recorded the highest number of passengers within the Intra- African Airspace.

No.1: Tunis – Mitiga Air route

This route is from Tunis–Carthage International Airport, Tunisia to Mitiga Airport, Libya. This route is operated by 4 airline(s), and the flight time is 1 hour and 25 minutes. The distance is 325 miles. This route is operated by Afriqiyah Airways, Libyan

Top 10 Intra - African routes by passengers carried Q1 2024 (OAG estimations)
Figure 12: Intra-African routes ranking



Source: OAG





Wings, Libyan Airlines and Aero VIP.

No.2: Johannesburg – Harare Air route

This route is from Johannesburg International, South Africa to Harare International, Zimbabwe. This route is operated by 6 airline(s), and the flight time is 1 hour and 50 minutes. The distance is 598 miles. This route is operated by FastJet, South African Airways, Air Zimbabwe, Airlink (South Africa), Safair and CemAir.

No.3: Accra- Lagos Air route

This route is from Kotoka International, Ghana to Lagos Murtala Muhammed, Nigeria. This route is operated by 3 airline(s), and the flight time is 1 hour and 10 minutes. The distance is 250 miles. Airlines that operate this route include Africa world Airlines, Air Peace and Cimber AS.

No.4: Algeria – Tunisia Air route

This route is from Houari Boumediene Airport, Algeria to Tunis–Carthage International Airport, Tunisia. This route is operated by 3 airline(s), and the flight time is 1 hour and 25 minutes. The distance is 390 miles. Airlines that operate this route include Air Algerie, Nouvelair, and Tunisair.

No.5: Addis – Asmara Air route

This route is from Addis Ababa Bole International Airport, Ethiopia to Asmara Intl, Eritrea. This route is mainly operated by Flydubai airline.

No.6: Nairobi – Entebbe Air route

This route is from Jomo Kenyatta International, Kenya to Entebbe International, Uganda. This route is operated by 2 airline(s), and the flight time is 1 hour and 20 minutes. The distance is 325 miles. Utair Express and Kenya Airways are the most dominant aircraft on this route.

No.7: Johannesburg – Lusaka Air route

This route is from Johannesburg International, South Africa to Lusaka International, Zambia. This route is operated by 4 airline(s), and the flight time is 2 hours and 20 minutes. The distance is 750 miles. Airlines that operate this route include South African Airways, Airlink (South Africa),

Proflight Zambia and Naysa.

No.8: Johannesburg – Mauritius Air route

This route is from Johannesburg International, South Africa to Sir Seewoosagur Ramgoolam International, Mauritius. This route is operated by 3 airline(s), and the flight time is 4 hours and 15 minutes. The distance is 1915 miles. This route is operated by Air Mauritius, South African Airways and Safair.

No.9: Tunisia – Bengazi Air route

This route is from Tunis–Carthage International Airport, Tunisia to Benina, Libya. This route is operated by 3 airline(s), and the flight time is 1 hour and 50 minutes. The distance is 662 miles. It is operated by Afriqiyah Airways, Libyan Airways and Skypower Express Airways.

No.10: Johannesburg – Windhoek Air route

This route is from Johannesburg International, South Africa to Windhoek Hosea Kutako International Airport, Namibia. This route is operated by 2 airline(s), and the flight time is 2 hours and 10 minutes. The distance is 727 miles. Aircraft that operate this route include South African Airways and Airlink (South Africa)



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Seven Radio Tips from a Tower Controller

Philberth Maximilian



Tower controllers, also known as air traffic controllers, manage aircraft and vehicle traffic at airports. They work in air traffic control towers, which are usually glass-enclosed structures at airports. Below are the seven radio tips from a tower controller to guide a pilot.

1) Know what you want to say before you key up the mic

When pilots are busy, there's not enough time for unimportant communication. Communicate only

important messages that address higher priority tasks to avoid increasing frequency congestion and blocking out other pilots trying to reach tower controllers.

2) Let ground and tower know you are a student pilot

If the tower controller knows ahead of time that you are a student pilot, the tower controller knows not to issue you any instructions that might make you feel uncomfortable, i.e. short approaches, etc. (NOTE: As a student pilot, you should only need to tell each controller once that you are a student pilot.)

3) Read back instructions with your callsign in the same transmission.

If the tower controller don't get the readback AND callsign in the same transmission, the tower controllers are forced to keep going back to the student pilot which takes up time.

4) Never be afraid to say "unable"

If you can't comply, speak up and we will work around it.

5) Unless otherwise informed, Please acknowledge all instructions.

Certain things do not require a readback, but when issued, at least give the tower controller your callsign. NOTE: you are never wrong to read back the full instruction.

6) When tower tells you to "standby", don't read the instruction back.

The tower controller is asking you to maintain radio silence until they get an opportunity to get back to you. Tower controllers may be waiting for a readback from another pilot, they may also be talking to another controller, or they might be updating the weather. There are a lot of reasons why tower controllers might ask you to stand by.

7) Departing VFR from a Class C or B airport?

Call Clearance Delivery with all of your information, and tell them if you want flight following all the way to your destination or just to get out of the airspace.

Be patient when requesting departure from a Class C or B airport. When you call up, the controller needs to type all of your information into the NAS. This might take some time. Don't worry if you don't get a response right away.

10 - 12 DECEMBER 2024, DWC, DUBAI AIRSHOW SITE

MEBAATM

SHOW



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The MEBAA Show 2024 drew to a close in December 2024, with a series of key deals and announcements, all set to drive the business aviation industry forward. The event attracted attendees from 100 countries, showcasing a notable rise in international participation compared to previous editions—underscoring its importance to the global business and private aviation sectors.

Throughout the show, more than 145 local, regional and international exhibitors displayed the latest business aviation aircraft, technology and solutions which are supporting the industry's strong growth trajectory. With more than 30 aircraft on display, this was one of the most remarkable static displays in the MEBAA Show's history.

The milestone tenth edition, held at Al Maktoum International – Dubai World Central (DWC), welcomed more than 10,000 international attendees from over 100 countries, underscoring its role as a catalyst for growth and collaboration within the sector.

New industry insights

Sheikh Sultan bin Hamdan Al Nahyan, Adviser to the UAE President, and Sheikh Rashid bin Hamdan bin Mohammed Al Nahyan, Chairman of the Board of Directors of the Presidential Flight Authority, visited the show on the final day, which saw the unlocking of new industry insights and announcements.

Ali Ahmed Alnaqbi, Founding and Executive Chairman of MEBAA - the Middle East & North Africa Business Aviation Association, said: "The MEBAA Show has always been more than just an event – it is a platform for innovation, collaboration, and inspiration. This year's edition has surpassed all expectations, with record attendance, impactful discussions, and transformative announcements that will shape the future of business aviation."

As we continue to witness rapid growth in the region, we remain committed to fostering partnerships, advancing sustainable solutions, and paving the way for the next generation of business aviation professionals."

Ali Alnaqbi opened the session with insights on unlocking opportunities in business aviation, followed by a panel of top HR leaders from Lufthansa Technik Middle East, Aviation Services Management, LunaJets, UAS, and IAE, who shared practical advice, essential skills, and personal experiences to prepare students for success in this dynamic field.

Key deals signed

Notable announcements and collaborations continued throughout the show, setting the stage for transformative advancements in the industry. Honeywell signed a memorandum of understanding (MoU) with Sino Jet, with both parties expected to expand their collaboration in areas such as aviation services and new technology development.

Similarly, MD ONBOARD revealed its latest tech-driven solutions for inflight medical advisory, redefining onboard medical support standards to prioritise passenger safety and operational excellence.

The BizAv Talks conference featured over 65 leading executives and innovators during the event, with the final day centring on the theme, 'The Business of Business Aviation.' In a fireside chat, Chadi Saade, President of Airbus Corporate Jets, shared his vision for the sector's evolving landscape, commenting: "We are having an exciting year in this niche market right now."

A thought-provoking panel titled 'Trade Secrets and Insights for Aircraft Owners' brought together industry heavyweights, including Chad Anderson, Chief Executive Officer, Jetcraft; Nadav Kessler, Managing Director, Asian Sky Group; and Paul P. Jebely, Chairperson, The Hague Court of Arbitration for Aviation.

Moderated by Wassim Saheb, Managing Partner UAE, Opus Aero, the session offered invaluable insights into

navigating the complexities of today's aviation market with confidence.

Other highlights of the show included the impressive static display, featuring more than 30 aircraft, and the debut of the Luxury Boulevard, sponsored by Falcon, which showcased some of the world's most esteemed luxury brands alongside iconic business jets.

New features such as the Startup Hub, and the Advanced Air Mobility pavilion further underscored the show's commitment to innovation.

Reinforcing the focus on collaboration and networking, platforms like the Operators Programme, sponsored by Saudia Private Aviation, and the Platinum Guest Programme, sponsored by Falcon, created valuable opportunities for attendees to forge new partnerships and build lasting relationships.

Reflecting the diversity of its agenda, the MEBAA Show 2024 has not only reinforced the region's reputation as a hub for business aviation, but also demonstrated the sector's commitment to innovation, sustainability, and talent development. From transformative partnerships to inspiring initiatives, the show has set the benchmark for what the future holds for the industry.

Partners for the 2024 MEBAA show event included 4Air, Air BP, AIX Investment Group, DarGlobal, DC Aviation, JETEX, Lufthansa Technik, MD Onboard, Saudia Private Aviation. The next MEBAA show event will be held on the 8th of December 2026 at Al Maktoum International Airport-Dubai World Central (DWC)





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Over the past decade, one of the most significant tech trends in the airline industry has been the gradual shift from traditional interlining and codeshare agreements to the now well-established concept of Virtual Interlining.

Since the late 1940s, airlines have relied on interline and codeshare agreements to expand their network reach without directly operating additional routes. These agreements enabled airlines to offer a wider range of destinations by partnering with other carriers, significantly enhancing customer options and operational flexibility.

However, the landscape of airline partnerships has been transformed—or some might say disrupted—by the concept of Virtual Interlining. Unlike traditional airline models that rely on formal partnerships, Virtual Interlining leverages advanced technology and entrepreneurial instincts to combine flight segments from multiple airlines without codeshare agreements in place.

Leading pioneers in this field, such as Dohop and Kiwi, first introduced these offerings more than a decade ago,

each taking distinct approaches.

Kiwi has primarily targeted the OTA space, focusing on B2C customers and often operating without direct airline partnerships.

In contrast, Dohop has concentrated on building close collaborations with airlines, emphasizing B2B relationships to holistically integrate Virtual Interlining into airline operations.

Over time, both providers added additional services like



insurance for missed connections and comprehensive customer support, thereby creating a new layer of value for travelers.

Today, a diversified ecosystem of Virtual Interlining providers has formed.

As we look to the future of Virtual Interlining, it's evident that we are on the brink of unlocking its next evolutionary stage. A variety of market forces are rapidly accelerating its adoption among both travelers and airlines. This shift calls for a new term that better captures the strategic significance and technological sophistication of Virtual Interlining in today's airline industry.

Virtual Interlining

The term "Virtual Interlining" often comes with negative connotations, particularly for travelers who link it with "self-connecting" and the lack of protection in case of flight disruptions.

Similarly, many airlines view Virtual Interlining as a loss of control over their inventory and content, especially when it bypasses traditional interline agreements.

However, the need for a new term goes beyond just clearing up traveler confusion and airline concerns. Initially, "Virtual Interlining" described the digital innovation of stitching together separate flights through online platforms—a concept that seemed almost exclusively virtual.

How "Virtual Interlining" has transitioned from a purely digital concept to one with significant real-world consequences:

1) Airport Adaptations

Airports globally have re-engineered their infrastructure to better serve self-connecting passengers—a key demographic of Virtual Interlining. For example: Budapest Ferenc Liszt International Airport launched "bud:connects" to streamline the transit process for self-

connecting passengers through direct assistance and integrated services.

Marseille Provence Airport introduced a Smart Pass that expedites self-connecting passengers through security and provides discounts within the airport, enhancing the overall passenger experience.

2) Airline Involvements

Airlines are increasingly incorporating Virtual Interlining strategies into their operations, often in partnership with technology providers, making it an integral component of their service offerings. This shift is primarily driven by a growing need to enhance the overall customer experience and remain competitive in a rapidly evolving market.

By offering more integrated and seamless end-to-end travel experiences, airlines are prioritizing customer needs over traditional industry constraints, such as formal interlining agreements. Recent examples include: Airlines are increasingly incorporating Virtual Interlining strategies into their operations, often in partnership with technology providers, making it an integral component of their service offerings.

Dohop's partnerships with airlines like Norse and Thai VietJet, which enhance network and service capabilities, demonstrate the growing airline endorsement of Virtual Interlining principles.

Tripstack is partnering with Thai low-cost carrier NokAir to expand the airline's website booking functionalities with its white-label Virtual Interlining solution.

The Future of Alternative Interlining

As we evaluate the influence of these structural drivers, it becomes increasingly evident that the Alternative Interlining market is poised for substantial growth. Last year, OAG models estimated that approximately 214 million passengers engaged with Alternative Interlining solutions.

Looking ahead to 2024 and beyond, OAG anticipates another year of robust double-digit growth for Alternative Interlining. This projection is supported by current forecasts from the International Air Transport Association (IATA), which predict an overall airline passenger growth of 11.6%. Additionally, the significant impact of the three structural drivers is expected to further accelerate this growth.

It would not be surprising if Alternative Interlining were to service over a quarter billion passengers this year alone. Achieving such a milestone would indicate that approximately 5% of total global passengers are utilizing these innovative self-connecting services, aligning with conservative estimates from industry experts and highlighting the increasing relevance of Alternative Interlining in the modern travel landscape.

Source: OAG





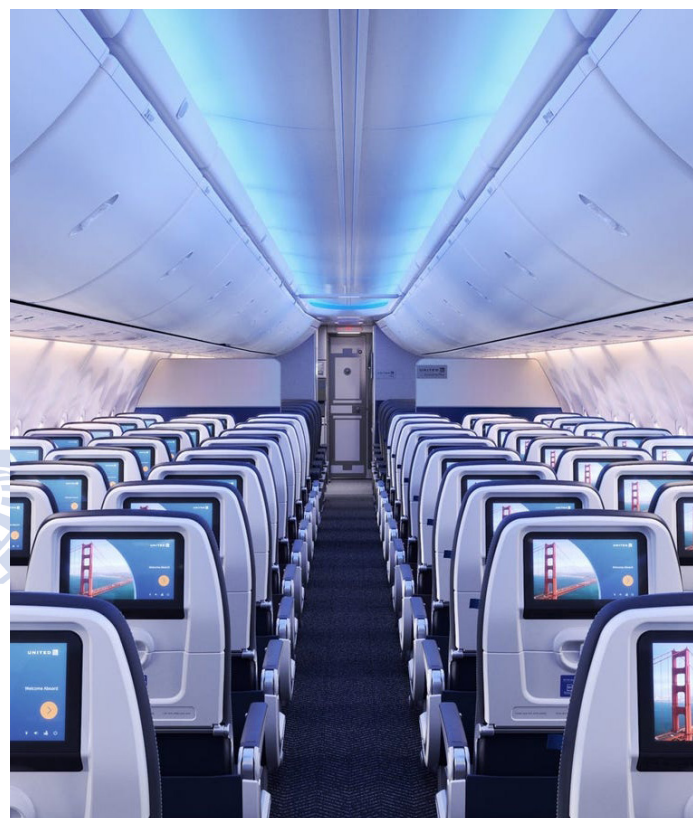
THE LARGEST AIRLINE IN THE WORLD

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United Airlines (UA) is now officially the largest airline in the world by fleet size, operating 1,000 mainline aircraft. This achievement strengthens United's dominance among US carriers and its leadership in available seat miles and international reach. While American (AA) and Delta (DL) remain strong competitors, United has surged ahead, fueled by strategic decisions during the pandemic and a robust aircraft order pipeline.

United Airlines (AA) reached a milestone, becoming the first carrier in the world to operate a mainline fleet of 1,000 aircraft. This achievement was marked by the recent addition of a Boeing 737 MAX 9 to its fleet. For context, United's closest competitors, Delta Air Lines (DL) and American Airlines (AA), operate 985 and 978 mainline aircraft, respectively.

In 2024, United led all US airlines in available seat miles (ASM), a critical metric reflecting airline capacity.



United recorded 311.2 billion seat miles, a 6.8% increase from 2023. This surpassed both Delta's 288.4 billion and American's 292.9 billion seat miles. United's leadership in ASM is partly due to its extensive network of long-haul and ultra-long-haul flights.

On average, United's flight segment length is 1,490 miles, significantly exceeding American's 1,154 miles. The carrier also boasts the most international destinations served by any U.S. airline, reaching numerous countries across all continents.

United Financial Growth

Despite its fleet size and capacity, United is not the most profitable among its peers. In 2024, Delta reported the highest operating income at \$6 billion, followed by United at \$5.1 billion and American at \$2.6 billion.

In terms of operating revenue, United edged out Delta, recording \$57.1 billion versus Delta's \$57 billion.

These figures highlight a competitive yet balanced dynamic among the "big three" carriers, with each excelling in distinct areas.

While United leads in fleet size and capacity, Delta's efficiency drives higher profitability.

United's growth strategy during the pandemic set the foundation for its current success. Unlike American, which aggressively retired older aircraft such as the Boeing 757 and Airbus A330, United retained most of its fleet and positioned itself for rapid recovery.

Additionally, United has placed one of the largest aircraft orders in industry history, including Airbus A321neos, A321XLRs, and Boeing 737 MAX variants.

This massive order book ensures the carrier's fleet will continue to expand and modernize in the coming years. The battle for dominance among US carriers remains

dynamic, with fleet expansions largely dependent on timely aircraft deliveries. For 2025, United expects deliveries of Airbus A321neos, A321XLRs, and multiple Boeing 787 variants, potentially strengthening its lead.

Delta and American are also expanding, with Delta focusing on wide-body aircraft like the Airbus A330-900neo and A350-900, and American awaiting new Airbus A321XLRs and Boeing 787-9s.

However, delays from manufacturers could influence outcomes, making it difficult to predict with certainty which airline will emerge on top.

Based on United's strategic trajectory, the airline is well-positioned to maintain its lead in fleet size and capacity. Its robust order pipeline, combined with its focus on long-haul routes and international expansion, reinforces its competitive edge.



Future Ready

Swedavia's drive for electric and hydrogen aviation

Sajedah Rustom and Steve Duley

John Nilsson, Strategic Planning Manager for Electric and Hydrogen Aircraft Infrastructure at Swedavia discusses the intricacies of hydrogen and electric aviation, as the airport operator strives to be an early adopter in this sustainable energy space.

Q: Firstly, what makes Sweden and Scandinavia in general, good regions to be a first mover in the electric or hydrogen space?

Sweden is a large and sparsely populated country, so the need to be able to move by air transport is paramount for its economy.

Fortunately, there's also a need to transform the air industry into something more sustainable and there are a lot of forces at play in Sweden to move towards a more sustainable mode of

transport.

I do believe that aviation can be sustainable, especially if we use battery electric aviation and hydrogen aviation. Electric aviation has one advantage, namely, it is very energy efficient. So, on shorter trips, commuter trips, we see a possibility for battery electric aviation to play a role in the transport modes of Swedish citizens.

Q: Where are you on your journey to enabling electric and hydrogen powered flights at Swedavia's airports?

At Swedavia, we had the ambitious target of becoming net zero on our own operations, and we reached that in 2020. The next step for us is to make sure that the whole aviation industry also reaches net zero.

So, we have partnered with many different stakeholders, both from academia, from research institutes and from the private sector, to push forward the knowledge base when it comes to electric and hydrogen aviation.

We have also carried out numerous feasibility studies on our airports and invested in small electric chargers for two-seater electric aviation at Östersund Airport and Visby Airport.

We are also in the process of securing the power for a stand at Stockholm Arlanda Airport that will be integrated in 2026.

Q: How do you manage the risks associated with these new technologies, both in terms of safety and operational viability?

Of course, safety is paramount and we're always going to keep the highest safety standards at



Swedavia's airports. So together, once again with the other stakeholders and the many projects that we have, we are looking at the risks associated with hydrogen and how to mitigate them.

Hydrogen is a known product in the industry and there's a lot of regulation around hydrogen and the handling of hydrogen. We would like to incorporate them in airport infrastructure and airport operational infrastructure, make sure that it's adapted and there are no safety concerns with hydrogen.

When it comes to operational investments, thankfully Swedavia is in a great position with the projects that we have, with the partnership with Airbus, for example, together with Vattenfall, Avinor and Scandinavian Airlines or with the Baltic Sea Region Hydrogen Airport Projects that we have together with many stakeholders around the Baltics.

Trying to understand which part of the value chain will be owned by which actor and how to have a flexible approach when it comes to building infrastructure will be key so we can easily ramp up and ramp down depending on the market outlook.



The same is valid for electric aircraft. We had lots of feasibility studies done on the best approach for infrastructure and how to keep it flexible and where, as an airport operator, we should take responsibility for the infrastructure.

Q: What are your ultimate goals around electric and hydrogen flights?

Well, the ultimate goal for the airline industry in Sweden, is to be fossil-free for domestic operations by 2030, and hydrogen and especially electric aviation will play a large role in that. By 2045, all aircraft departing from Sweden should be fossil-free.

There we see that hydrogen and electricity will also play a large role, especially hydrogen, in the medium-haul traffic from Sweden and hopefully electric for the shorter-haul traffic, depending on the evolution of battery capacity in the future. We really do envisage electricity and hydrogen playing a large role in deHeart Aerospace ES-30™. Credit: Heart Aerospace

Q: What economic opportunities do you see arising from the early adoption of electric and hydrogen aircraft infrastructure?

We are still investigating the opportunities that are possible with being early adopters, but the non-economical side of it is also to show that we can beat fly-shaming and that we can actually fly without polluting the environment. That is an opportunity for Swedavia, and also a necessity for us to survive in the future.

Are there specific industry partnerships or collaborations that have been particularly instrumental in advancing your strategy?

As I mentioned before, our partnership together with Airbus, SAS, Vattenfall and Avinor is of great importance to understanding a larger ecosystem for hydrogen aviation, as well as our partnership with the Baltic airports and the Baltic Sea Region Hydrogen Airport project.

And for electricity, the tight collaboration that we have with Heart Aerospace and with the RISE Research Institute of Sweden has helped us to understand the future and start to plan according to the necessities of the future airports.

Q: Finally, what are your top tips for other airport leaders who are looking to take the first steps in this journey? What can they learn from a first mover such as yourself?

Don't be afraid to collaborate across borders with energy companies, and with other airports. It's important to be able to collaborate, to be open-minded, and to share the information that you have gathered because we won't be able to do this alone.

We need to have large collaboration across the stakeholders in the aviation industry and outside of the aviation industry to be able to produce the energy that we need for decarbonising aviation history.

Credit: Holly Miles

Some of the World's Most Expensive Private Helicopters

Time is money, and it's especially true in navigating the world's most populated metropolitan centers from Los Angeles to Hong Kong.

This list features seven of the most expensive helicopters in the world, with an overview of their designs, technological advantages, and passenger amenities rivaling many smaller business jets.

1. ACH160 Exclusive

The twin-engine ACH160 has it all—speed, agility, and comfort. With a range of 460 nautical miles and a maximum cruise speed of 178 mph, this 10-passenger helicopter has 68 patents, with distinctive features like Airbus's Fenestron shrouded tail rotor that dampens the sound signature and vibration.

Sound-proofing and spacious double-pane windows also suppress flight noise for a quieter working environment. The cabin offers customization options for leather arm chairs or bench seating, trim and storage options. In the cockpit, the ACH160 utilizes Airbus's Helionix Avionics Suite and incorporates its four-axis autopilot system, synthetic vision, traffic-collision avoidance systems, and more. From \$15 million.



2. Leonardo AW609

The Leonardo AW609 has the advantages of vertical take-off and landing with the speed and range of fixed-wing turboprop aircraft. This distinctive tiltrotor delivers a maximum speed of 310 mph with an impressive range of 700 nautical miles.

The aircraft can fly at 25,000 feet in a pressurized cabin with five-foot headroom and VIP seating can accommodate eight passengers.



3. Sikorsky S-92 Executive

The award-winning Sikorsky S-92 Executive has been chosen by heads of state from 10 countries, including the recently delivered Marine One for U.S. presidential travel. This rotorcraft has the largest cabin in its class, seating up to 10 passengers, with stand-up cabin height and forward and aft seating arrangements. With a maximum cruise speed of 174 mph and a range of 547 nautical miles, the S-92 can operate at ceiling of 15,000 feet.



4. Airbus ACH175

The Airbus ACH175 integrates safety, performance, and a superior passenger experience. It has a top cruise speed of 174 mph and range of 613 nautical miles and flight endurance of six hours, three minutes.

Impressive, considering it can accommodate up to 12 passengers. The cabin's length of just over 17 feet and eight-foot width allow customization of three interior configurations. Large windows, airy interior, reclinable leather arm chairs, a modular bench concept, mini-bar, coffee machine, and lavatory are among the customizable options available.



6. Leonardo AW189

Leonardo's five-blade Augusta AW189 is about blending performance with comfort. This helicopter can transport up to 14 passengers with a maximum range of 507 nautical miles and maximum cruise of 182 mph. Large windows and leather club seating, combined with in-cabin entertainment and wireless connectivity, deliver a comfortable working environment.

A built-in auxiliary power unit allows pre-flight cabin air-conditioning without the need to engage the rotors. Leonardo's advanced, open-architecture avionics suite and integrated glass cockpit give pilots plenty of data for situational awareness and safety.



5. Bell 525 Relentless

The Bell 525, with the appropriate moniker "Relentless," combines luxe amenities for business travel with advanced flight-deck technologies like the Garmin G5000H and a touchscreen glass flight deck.

Safety extras include a terrain-awareness warning system and a five-color terrain proximity display with voice callouts to make pilots aware of height below 500 feet. This medium-lift rotorcraft can accommodate up to 16 passengers and two pilots, with a maximum cruise of 184 mph and range of 629 nautical miles.



7. ACH130 Aston Martin Edition

This isn't the most expensive helicopter on the list, but the James Bond-caliber interior brings it to a higher level.

Available in four interior and exterior finishes, the design is inspired by Aston Martin's high-performance DB11, with seats and doors upholstered in leather and coordinating ultra-suede covering the rest of the cabin.

Credit: Daniel Cote

A Rejected Take-Off

How to Safely Stop

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While there are plenty of reasons why you should reject a takeoff, the key is having a solid plan in place every time you advance the power for takeoff. Here's how to prepare for a rejected takeoff, and how to execute it.

Why Reject? Emergency and Abnormal Situations

Whether you're flying a Cessna Skyhawk or an Airbus A320, there are dozens of emergency and abnormal situations during the takeoff roll that could require you to perform a rejected takeoff. Here are some of the most common:

- Loss of Engine Power
- Door Popping Open
- Runway Incursion
- Pressurization Failure
- Low Oil Pressure / High Oil Temperature
- Stall Protection / AOA Failure
- Inadequate Acceleration
- Engine Vibrations

- Windshear
- Any Kind of Fire
- Loss of Directional Control

ATC Takeoff Cancellation

If something seems wrong or out of place during any takeoff, reject the takeoff as early as possible at a slow speed.

Brief Your Takeoff Plan

Whether you're alone, flying with a friend, or flying with a crewmember, brief your rejected takeoff criteria. It's something every airline requires of its pilots, and something that every GA pilot will benefit from.

Verbalize the points at which you plan to take the aircraft airborne vs. reject the takeoff and stay on the runway. While you can't possibly name every possible scenario, highlighting these criteria will make it easy to make a go/no-go decision during takeoff.

If you're flying a piston airplane, you don't have the same high speed reject concerns that pilots flying jets face. Generally speaking, if you haven't lifted off the ground in a piston airplane and something goes wrong, your best bet

Rejected Takeoff Procedure

1) Power idle

2) Maintain directional control

3) Maximum necessary braking



is to stay on the ground.

Only take a problem airborne in small aircraft when you don't have runway remaining, or if it's a minor issue that you know can be easily dealt with.

Concerned About Runway Length? Here's What the FAA Suggests

The FAA says in Chapter 5 of the Airplane Flying

Handbook: "Prior to takeoff, the pilot should identify a point along the runway at which the airplane should be airborne. If that point is reached and the airplane is not airborne, immediate action should be taken to discontinue the takeoff. Properly planned and executed, the airplane can be stopped on the remaining runway without using extraordinary measures, such as excessive braking that may result in loss of directional control, airplane damage, and/or personal injury".

How to Execute a Rejected Takeoff

The general procedure for a rejected takeoff is simple: Power Idle, Maintain Directional Control, Maximum Necessary Braking.

Keep in mind, however, that you should always follow the procedure your aircraft manufacturer recommends. And if you reject a takeoff due to an engine fire, you may need to bring the mixture control to idle cutoff to stop fuel flow to the engine. Then, once you're stopped, follow the procedure for an engine fire on the ground.

There are a few things you should take into consideration when performing "maximum necessary braking." If you're taking off on a runway with thousands of feet remaining, you probably don't need to aggressively brake as you reject the takeoff. With aerodynamic braking, you might not really need to use your brakes at all. Just use enough braking action to safely stop the aircraft before the end of the runway.

Why don't you want to aggressively brake? When you're

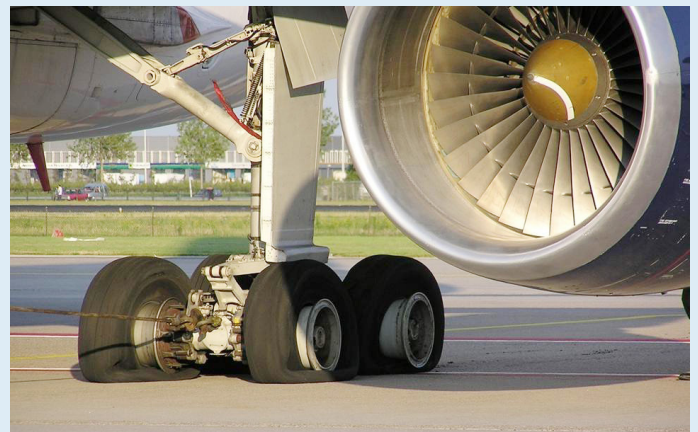
near rotation speed, there isn't much weight on your tires, because your wings are generating lift. That means it's easier to lose directional control if you're aggressive on the brakes during a rejected takeoff.

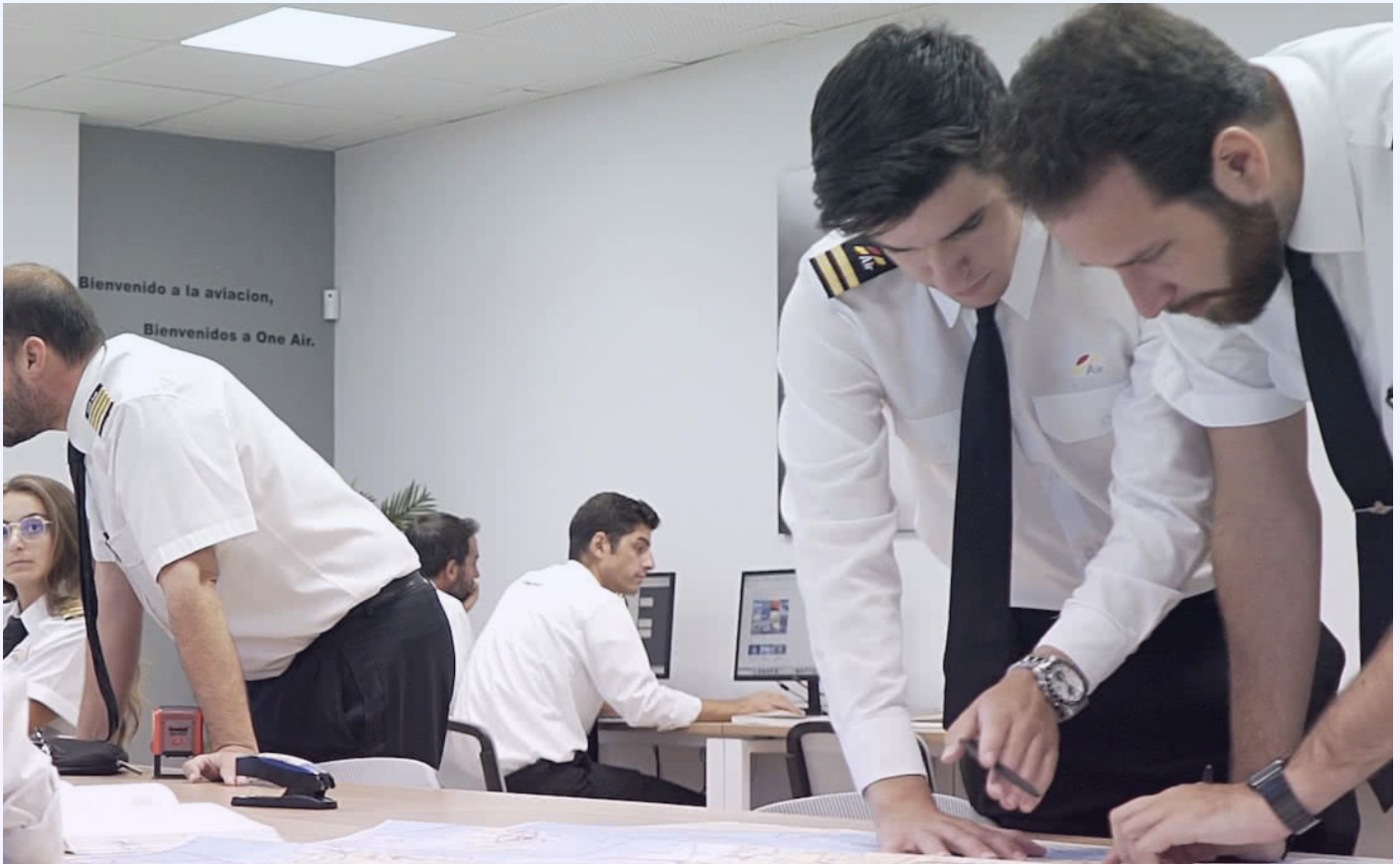
On top of that, locking up a tire at high speed due to aggressive braking could cause a brake to lock or a tire to pop, making your situation even worse. When the FAA recommends "maximum necessary braking," you should only brake as much as required for the runway distance remaining.

Communicate Your Intentions

Once you've slowed down and the imminent threat has been avoided, communicate your intentions to ATC or other aircraft on the CTAF frequency. Let them know that you've rejected the takeoff, where you plan to exit the runway, and if you need any additional assistance. Never rush to exit the runway if you've just rejected a takeoff. Take a deep breath, slow the airplane to a controllable speed, and find a safe place to exit the runway.

Credit: Boldmethod





All about Pre-Flight Planning

Philberth Maximillian

The crew normally meets in the crew room, usually about an hour before the flight to perform their planning. Aircrew in large airlines will often not know each other before the flight so introductions may be necessary.

During the pre-flight stage the flight crew is supplied with all data concerning the flight. Alternatively they will download and print it from the company's network. This will include the Pilot Log (PLog) showing all data concerning the flight (e.g. waypoints, flight levels, and speeds), met data and NOTAMS. All data is checked.

Delays, such as late slot times, are also checked.

The aircrew will also perform some basic weight calculations. Each individual aircraft has a unique Basic Empty Weight depending on the configuration of the aircraft (equipment, configuration etc.). Adding the flight crew and cabin crew to the Basic Empty Weight results in the Operating Empty Weight (OEW). However, all aircraft of a certain type usually have the same Max Take-Off Weight (MTOW).

The difference between the aircraft OEW and the MTOW inform the pilots of how much fuel, passengers and cargo they can take. The passenger numbers and cargo load tend to be fixed and would only change if the flight cannot otherwise go ahead, but the fuel load can vary depending on external factors, such as weather. This is

usually pre-ordered so that the fuelling team can start filling up the aircraft immediately it arrives from a previous flight.

The load figures are then passed on to the operations department who are able to calculate the aircraft's weight and balance figures. Alternatively the crew will perform these calculations themselves. The crew need to know the aircraft's final weight and balance as this must be within defined limits. For this reason the data is later also entered into the aircraft's Flight Management System (FMS).

It is usually in the crew room that the Captain and First Officer decide upon who flies what leg. Similarly the cabin crew will arrive to perform their brief, which includes emergency procedures and roles onboard.

Set up and Briefing

Arriving at the aircraft is a very busy time for both cabin and flight crew as a large number of tasks must be completed in a short period of time. This is particularly true if the aircraft is late coming in from the previous flight. During a busy turnaround the aircraft is approached by cleaners, engineers, refuellers, dispatchers and so on. One pilot will normally be setting up the flight deck, whilst the other pilot will be outside performing an external check of the aircraft to look for any defects, bird strike damage, etc and checking that sensors and probes are free from obstructions.

The pilot remaining on the flight deck will power up the aircraft and begin the pre-flight checks. This could mean starting the Auxiliary Power Unit (APU) (APU) and setting all controls in the desired positions, which is usually done in accordance with a checklist. All the emergency equipment is also checked, such as oxygen masks and fire extinguishers.

The flight deck will then be set up for the particular departure that is anticipated (headings, levels and frequencies). This is usually done by the Pilot Flying (PF) as it is he/she that will be managing that particular leg. A very important part is the Flight Management System (FMS) which is the aircraft's main computer system that to a large extent controls the flight. It must be programmed for the flight; the whole flight must be entered from beginning to end and all waypoints checked. There is also other data that must be entered, such as the Cost Index.

At some point a dispatcher will enter the flight deck with a load sheet showing the final take-off weight and balance figures, which are based on the weights that the pilots provided during their pre-flight preparations. This is entered into the FMS, which in return provides all trip data e.g. fuel required, flight time, max flight level, etc Somewhere in the background passengers will be boarding the aircraft.

A very critical part is determining the take-off speeds, which can be done once the take-off weight is known.

There are three speeds that are determined:

- V1: this is the point of no return. After passing this speed the aircraft is going no matter what;
- Vr: this is the speed at which the pilot must pull back on the stick/yoke and 'rotate' the aircraft so that it begins to fly;
- V2: this is the take-off safety speed and is the speed at which the aircraft may safely be maneuvered with one engine inoperative.

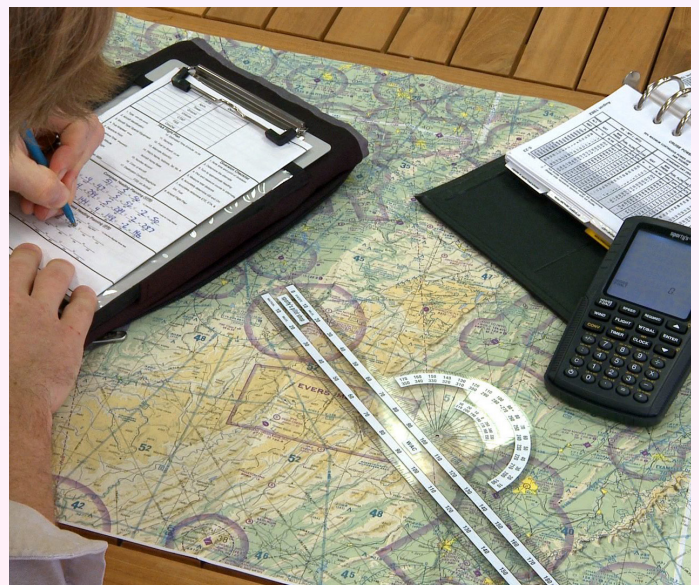
Usually a separate book or laptop is used to find the speeds, which are crosschecked and then entered into the FMS. It is worth noting that all take-off calculations are based on an engine failure scenario. In other words, the aircraft should be able to stop on the remaining runway before V1 or safely take off after V1 should an engine fail.

The crew may decide to perform a 'reduced thrust take-off' which means using only the amount of take-off thrust required after taking into account several factors such as aircraft weight, runway length, runway elevation and the conditions of the day. This requires a separate calculation which is also cross-checked and the purpose of which is to increase the life of the engines.

The departure clearance is then obtained from ATC and is checked to ensure that it corresponds with the set-up of the flight deck. If there is a delay (slot time) the crew will tell ATC that they are ready, and hope for a better time. This can only be done if the aircraft is actually ready, meaning loaded with passengers and fuel, and all doors and hatches closed.

Once the departure is confirmed by the departure clearance the briefing can begin which tends to be given by PF. The briefing will be an in depth description of the departure and what to do in case of an emergency. If there is an Emergency Turn Procedure it will be covered during the briefing.

Source: SkyBrary



HOW FAST DO PLANES FLY?

John Isiko

The speed at which planes can fly has significantly changed due to manufacturing advancements. Since the Wright brothers' first powered flight in 1903, aircraft designs have significantly evolved, enabling quicker and more effective flying.

Compared to piston engines, which were once the most prevalent engine in airplanes, these engines are significantly more powerful and efficient. The development of jet engines has allowed aircraft to travel at 600 mph or more speeds. Many speed records have been broken since then as development has routed into modern times.

Factors Affecting the Speed of a Plane

Altitude

The air becomes less dense as one rises in altitude. The wing produces less lift as a result. As a result, a 747, for instance, may struggle to maintain altitude and

lose speed as it struggles to maintain its lift.

High altitudes also result in less dense air going through the engines and over the wings, reducing the acceleration the engines can exert.

Especially at elevated heights with a fragile atmosphere, this may cause the 747 to lose speed. On the contrary, as the air density decreases at high elevations.

Weight

The weight of an airplane can also affect its performance and speed. For instance, a heavy Airbus A380 needs more power to travel at a certain speed than a lighter Airbus A320.

Engine type

An airplane's speed may also depend on the kind of engine it uses. Because they are more effective and powerful than piston engines, jet engines, like the ones in the Boeing 777, are frequently used in larger aircraft.

Wind



The force of the wind may have a significant impact on the aircraft's speed. The wind's speed and direction can impact the aircraft's ground speed, the velocity at which it traverses the ground, and its airspeed, which is the pace at which it goes in the air.

The wind condition is categorized according to its direction:

1. Headwind

"Headwind" refers to a wind blowing in the opposite direction. Headwinds can reduce a plane's speed because they work against its motion.

2. Tailwind

A "tailwind" is a wind that moves in the same direction as the aircraft.

Aircraft design

An airplane's design can also affect its maximum speed. There is a role for aerodynamics. This is relevant to the engines' placement and the wings' design.

How Is a Plane's Speed Measured?

The speed of an airplane, or





airspeed, may commonly be determined by four basic methods:

1. Indicated Airspeed (IAS)

Static pressure and the aircraft's pilot tube measure indicated airspeed. The pilot's airspeed indicator, which may be a standalone gauge or a component of a main flight display or PFD, shows this measurement.

2. True Airspeed (TAS)

The aircraft's speed in proportion to the air around it is measured as true airspeed. The IAS will be less accurate since the ambient air pressure is lower at higher elevations.

3. Groundspeed (GS)

Groundspeed gauges how fast an aircraft moves compared to a specific location on the ground. The accurate definition of GS is real airspeed adjusted for wind.

4. Calibrated Airspeed (CAS)

The calibrated airspeed is computed using indicated airspeed adjusted for measurement inaccuracies. Particularly at slower speeds, CAS is beneficial.

Units of Measurement of Speed

MPH

Mph is a unit of measurement frequently used for aviation and ground transportation, and it calculates how far an item can move in an hour.

Mach

Mach number is a unit of measurement that contrasts an object's speed with the sound

speed. By subtracting the speed of sound from the aircraft's speed, one may calculate Mach. However, at various air pressures, the sound speed changes.

The Speed at Different Intervals

The Speed of a plane is not always the same, it changes from period to period, and here we will explain them in detail.

During Takeoff

Typically, an airplane will fly at a low speed when it accelerates down the runway and lifts off the ground during takeoff. The aircraft's weight and size, the runway's length, and other variables will all affect the precise speed.

During Cruising

An airplane typically flies reasonably constantly until it reaches its cruising altitude. The aircraft's size, type, environmental elements, and wind and air density will all affect the precise cruising speed.

During Landing

An aircraft typically flies slowly as it approaches the runway and touches down during a landing.

Examples of Airplane Speeds

Different types of planes exhibit different speeds. Following are the examples which support the previous statement.

Commercial airliners

The typical speed of passenger aircraft like the Boeing 747 and the Airbus A380 is 500 to 600 mph. Cruising at these speeds is more effective, although they can move faster.

Military Jets

Military aircraft designed for high-speed flying include the F-16 Fighting Falcon and the F-35 Lightning II. They move at rates that can reach 1,500 mph or more on average.

Small General Aviation Planes

These aircraft are utilized for various purposes, including personal, business, and recreational travel. Examples of small general aviation aircraft are the Piper PA-28 and Cessna 172. These aircraft typically cruise at a speed of between 100 and 200 mph.

Private jets

Private aircraft are the pinnacle of swiftness. For instance, the Aerion AS2 can travel 1,200 miles per hour and cover the distance between New York and London in under three hours.

Reasons Aircraft Don't Fly with Full Speed

Commercial aircraft rarely fly as fast as they are capable of. The typical commercial aircraft will only use 75% of its overall power while cruising. There are two primary justifications for airlines not operating their aircraft at full capacity:

Cost-Saving

By flying their aircraft at slower speeds, airlines save fuel and cut down on maintenance and operational expenses. There is no reason to modify the current situation as more consumers choose cheaper tickets with slightly earlier arrival timings.

Technical Issues

Because there is less air resistance when flying at lower speeds, there is also less damage to an aircraft that results from maintenance.

Credit: Abed Serhan



Wehda El Aridi

Speaks about MD ONBOARD's
Growth and Future Prospects

MD ONBOARD, a remote medical advisory services company is a company specialized in provision of aviation emergency medicine. The company delivers medical advice and support to the global aviation market, with a focus on real-time assistance to flight crews and ground staff, managing medical events from preflight to inflight to post-flight.

The Aviator Africa talked to Wehda El Aridi, chief growth officer at MD ONBOARD about the company's growth and future prospects in an interview below.

Qn: Why did Northwell Health found an Aeromedical Company?

Ans: Northwell Health, one of the largest and most innovative healthcare systems in the United States, founded MD ONBOARD with a clear mission: to address a critical gap in aviation medicine. Drawing on decades of experience in both the healthcare and aviation industries, Northwell recognized the growing need for a reliable, efficient, and consistent solution to managing medical situations at 35,000 feet.

The aviation industry—spanning both business and commercial sectors—faces unique challenges when it comes to medical emergencies. Limited access to immediate care, variability in response protocols, and the high stakes of inflight incidents all highlight the need for a robust system that ensures passenger and crew safety. Through extensive research and collaboration with aviation professionals, Northwell Health identified these gaps and developed MD ONBOARD as a cutting-edge solution. Leveraging expertise in healthcare and aeromedical operations, MD ONBOARD bridges the divide by providing real-time medical support, advanced training, and innovative tools tailored for the aviation environment.

This initiative reflects Northwell Health's commitment to pioneering advancements that improve lives beyond traditional healthcare settings. By founding MD ONBOARD, Northwell is not only solving a pressing problem but also setting a new standard for inflight medical care, empowering aviation professionals with the resources and confidence to handle medical emergencies anywhere in the world.

Qn: How are you different than others who provide medical care for the aviation industry?

Ans: At MD ONBOARD, we stand apart from others in the aviation medical industry because we are built on a foundation of excellence: a 911-accredited emergency medical service infrastructure that ensures immediate, professional, and reliable care. Unlike other providers, our first point of contact is highly trained paramedics who are skilled in emergency response, offering a level of expertise and responsiveness that is unparalleled.

What truly sets us apart is our integration with Northwell Health, a leader in healthcare innovation. Through this partnership, we connect aviation crews with aviation-specialized physicians and paramedics who are not only experienced in providing remote care but also deeply familiar with the unique challenges of inflight emergencies. This specialization ensures that the advice and support crews receive are not just medical in nature but tailored to the nuances of the aviation environment.

Moreover, we leverage advanced technology to provide faster and more stable connectivity—a critical advantage in an industry where time and reliability are paramount. Our ability to deliver seamless telehealth services even in the skies positions us as a trusted partner for aviation teams, enabling them to access life-saving expertise when they need it most.

MD ONBOARD isn't just a new player in aviation medicine; we are a proven telehealth provider bringing innovative solutions to the skies. By combining robust infrastructure, aviation-specific medical expertise, and cutting-edge technology, we are redefining what's possible in inflight medical care.

Qn: What are the critical services that you will be able to provide?

Ans: MD ONBOARD offers a comprehensive suite of critical services designed to enhance safety and medical preparedness in aviation:

- **Inflight Medical Advisory Services:** Real-time support from aviation-specialized physicians and paramedics to handle medical emergencies effectively.
- **Preflight Medical Advice:** Expert guidance for ground staff and passenger clearance to address potential medical issues before take-off.
- **Postflight Medical Support:** Assistance with debriefing and evaluating inflight medical events to ensure continuous improvement and readiness.
- **Crew Health and Security Assistance Services:** Comprehensive support to ensure crew well-being and address health or security concerns, both inflight and on the ground, enabling them to operate safely and confidently.
- **Aviation Medical Equipment Reviews:** Assessing and optimizing onboard medical equipment to meet the highest standards of safety and functionality.
- **Crew Training and Education:** Providing robust training programs and materials to empower crews with the knowledge and confidence to manage medical scenarios.

These services collectively ensure comprehensive support for aviation teams at every stage—preflight, inflight, and postflight—setting a new standard for medical care in the skies and when away from home





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The Falcon 6X is a large long-range business jet by French manufacturer Dassault Aviation. It was introduced on the 30th of November 2023 and its first flight took place in March 2021. It was developed from the Falcon 5X twin jet but is a stretched version with different turbofan engines. It entered service in November 2023.

The Falcon 5X ended development in December 2017, due to issues with the Safran Silvercrest engines and the project was abandoned. The engines failed to meet performance objectives. Later, Pratt and Whitney Canada engines were used, which were already in use in the Gulfstream 500 and 600.

By March 2022, the aircraft had completed cold weather testing and the test fleet had accumulated 650 flight hours and 220 missions. In May 2022, the three test aircraft had logged a total of 850 hours. The entry into service of the Falcon 6X was delayed until mid-2023 due to supply chain issues caused by the pandemic and the Russian invasion of Ukraine.

In 2023, the Falcon 6X equipped's price was \$53.8

million. It received Federal Aviation Administration (FAA) and European Union Aviation Safety Agency (EASA) certification in August 2023. It is the "first ultra-widebody purpose-built business jet in the industry" according to Dassault. They also say that the Falcon 6X redefines the business jet experience with more comfort, safety and technology.

The Falcon 6X utilizes many of the Falcon 5X aerodynamics and systems. The front fuselage extension makes the cabin 20 inches longer than the Falcon 5X. It has the new 761 square-foot wing from the 5X. The Falcon 6X wing is optimized for high and low-speed performance



and has a new flaperon control surface taken from Dassault's military Rafale aircraft.

The aircraft has the same advanced digital flight control system and Honeywell Primus epic EASy IV flight deck. The Falcon 6X can land at 85% of its Maximum Take Off Weight (MTOW) and still fly for nine hours without needing to refuel.

The Falcon 6X has superior operating flexibility and unparalleled performance on steep approaches to short runways, including London City Airport in the UK and Lugano Airport in Switzerland. The aircraft has Pratt and Whitney Canada PW812D turbofan engines powered by 13, 460 pounds of thrust.

The aircraft has a range of 5,500 nautical miles or 10,200 kilometers and it has a top speed of Mach 0.90. It has a cruise speed of Mach 0.85. The aircraft's range of 5,500 nautical miles means that it can travel between these city pairs without the need to refuel:

- London to Hong Kong
- Los Angeles to Geneva
- São Paulo to London
- Paris to Johannesburg
- Los Angeles to Moscow

In the Cabin

The spacious cabin can seat between 12 and 16 passengers over three zones. The aircraft has thirty large windows offering panoramic views and a distinctive feature is the galley skylight. The size of the cabin offers freedom of movement but also for privacy and relaxation. When used for business, the seating style promotes teamwork and productivity. It can combine a flexible working and living space.

It is ergonomically designed for the utmost comfort and designed for passengers to travel further but feel refreshed on arrival at their destination. The cabin can be customized to the needs of the owner or operator. The cabin has flowing lines, a feeling of space with no clutter and the extra large windows allow lots of natural light into the cabin. The mood lighting can be controlled by the passengers, to reset their circadian rhythm and adjust to time zones easily.

The cabin is soundproofed and is one of the quietest in the industry. There is an optional privacy suite for sleeping or to use for private business meetings. It has a cabin divider and berthable seats. It can also be used as an area to relax or as an entertainment room.

In the cockpit

The flight deck has the latest generation of the EASy IV avionics suite, which is more powerful and has more vivid displays. There are new safety features including the Honeywell Runway Overrun Awareness Advisory System (ROAAS).

The Falcon 6X has the advanced version of the Digital Flight Control System (DFCS) of the Falcon 7X and 8X. This commands all flight control surfaces for peak performance and efficiency. It has advanced flight envelope protection for safety.

The FalconEye Combined Visual System (CVS) and Head Up Display (HUD) provides enhanced safety and situational awareness in all weather conditions, including when there is low visibility. It is useful at airfields with difficult terrain and offers guidance on approach down to 100 feet before the runway is in sight. The flight displays show 3D images of the environment.

The FalconScan advanced diagnostic system monitors and reports on 100,000 maintenance parameters. The FalconSphere Electronic Flight Bag (EFB) makes flight management easier and more efficient. There is also Sirius XM satellite radio weather and the ADS-B IN traffic advisory.

Dassault always does what it wants to achieve when developing a new aircraft. They use tried and tested aircraft features that have stood the test of time and advanced them.

Dassault Aviation is a leading aerospace company that has a presence in over 90 countries around the world. They produce the Rafale fighter jet as well as the line of Falcon business jets. Since the first rollout of the Falcon 20 in 1963, over 2,700 Falcon jets have entered service.



The Challenges Single Runway Airports Face

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For the vast majority of global airports, a single runway does just fine. With a runway of adequate length, a facility can perform around 35-40 operations per hour, which includes both landings and takeoffs. For most airports, this is honestly far more than enough.

Several noteworthy single-runway airports are not operating at full capacity but are still struggling to grow, meaning that there are many other factors affecting their continued development.

In this article, we will take the opportunity to take a deeper look at these one-runway airports and attempt to determine what factors are currently their largest barriers to sustained growth.

Limits the number of flights per hour

An airport might have two separate runways but only one taxiway that can be used at any given time, limiting the number of flights per hour to the same as a single runway. Furthermore, an airport may have multiple runways, only one of which is actually suitable for commercial flights either due to its length or the quality of the runway surface.

Capacity limitations and operational delays are the two largest challenges most airlines struggle with at single-



runway airports

Flight capacity will effectively be limited

It is important to note that the first and most obvious challenge posed by single-runway operations is the fact that flight capacity will effectively be limited. However, this likely does not work out exactly how one might expect.

The vast majority of single-runway airports do not operate at maximum capacity throughout the day, but the busiest facilities do tend to hit maximum capacity during peak hours, something which ultimately prevents airline network expansion.

For example, an airline will typically want to operate flights during the hours of the day when passengers most want to travel, which for business travelers tends to be early in the morning and the evenings.

Congestion during peak travel times

As a result, single-runway airports are overwhelmingly congested during peak travel times, something which leads to ground delays in different ways. For example, single-runway airports typically have fewer gates and fewer taxiways, meaning that airline passengers are far more likely to have to wait on the ground in line for takeoff and while in line for gates after arrival.

Operational delays

Airports with just a single runway are overwhelmingly at risk of operational delays, far more so than their peer facilities which have multiple runways at their disposal. If any kind of disruption occurs, whether it be an aircraft emergency, some kind of maintenance issue, or unfavorable wind conditions on the runway, the entire facility will likely come grinding to a halt.

Without an alternative runway, events that would be minor incidents at larger airports would result in significant delays and could even force diversions to other airports for jets already in the air.

"Business continuity at a single runway airport can be jeopardized when a major disruption to their only runway occurs, such as a disabled aircraft or when major maintenance work is required."

The ACI also notes that most single-runway airports do

not have the space available to add a second runway. Furthermore, operational issues that may occur at a single-runway airport will become even more problematic if the facility is not part of an airport network and airlines do not have any other airports to divert to.

For some countries or islands with just a single international airport, this can be an even larger issue as a disruption to single-runway operations could completely halt long-haul air travel.

One solution that could address some of these challenges is the existence of a stand-by runway. This is a runway that can be used if the operational capabilities of the main one are compromised in some significant way. Such a situation exists at Gatwick Airport, where a second runway can be used in the event something goes wrong on the other one, although the two are technically too close together to allow for simultaneous service.

Maintenance challenge

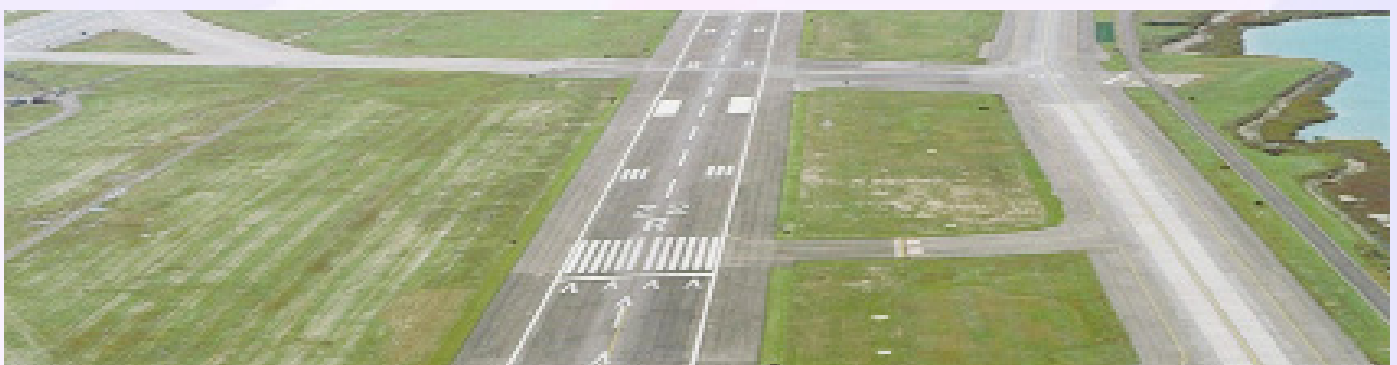
Another major issue that exists with single-runway airports is maintenance. The single runway at any of these facilities ends up being used extensively by passenger aircraft, meaning that frequent maintenance is a must.

While small-scale upgrades will likely only involve the runway being shut down overnight, large-scale runway improvements will likely require runways to be shut down for multiple days at a time, bringing the airport's operations grinding to a halt.

San Diego International Airport (SAN), one of the US's most important single-runway airports, will have to face this issue as it has recently been granted over \$26 million for runway improvements, according to San Diego-based local news outlet Fox 5.

When the airport does decide to perform these desperately needed repairs, it is quite likely that operations to and from the facility will be shut down, requiring passengers to plan to fly on a different day. Lastly, airports with just one runway will often have higher noise levels, due to the higher concentration of aircraft taking off in exactly the same place at any given time.

Credit: Alexander Mitchell





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The shortest international flight routes in the world showcase how air travel connects regions, even over remarkably short distances. These routes, often under 100 km, serve as vital links for communities, businesses, and tourists, demonstrating the efficiency and necessity of aviation in unique scenarios.

This article explores the shortest international flight routes in the world by distance, focusing on their frequency, aircraft types, and operational contexts.

1. Brazzaville (BZV) to Kinshasa (FIH)

- Distance: 24 km
- Airline: ASKY Airlines, Ethiopian Airlines
- Aircraft: Boeing 737-800
- Flight Time: 15 minutes (Actual Time) | 50 min (Scheduled Time)
- Frequency: 7 flights weekly

The shortest international flight route in the world connects Brazzaville (BZV), the capital of the Republic of Congo, to Kinshasa (FIH) in the Democratic Republic of Congo.

Covering a mere 24 kilometers, the scheduled duration is 50 minutes but the actual flight time is around 15 minutes.

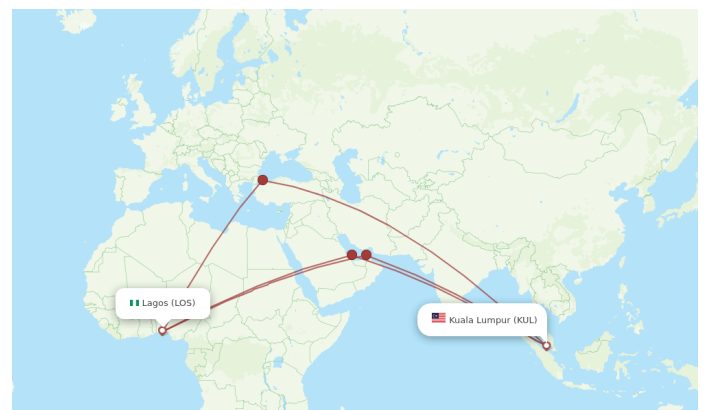
2. St Martin (SFG) to St Barthelemy (SBH)

- Distance: 31 km
- Airline: Air Antilles
- Aircraft: Cessna 208B Caravan
- Flight Time: 15 minutes
- Frequency: 37 flights weekly

This 31-kilometer route connects two popular Caribbean islands, St Martin (French part) and St Barthelemy, attracting tourists seeking a quick change of scenery. With an average of five daily flights, it's approximately 495 times shorter than the world's longest flight, underscoring the unique regional demand for ultra-short routes.

3. Saba (SAB) to St Maarten (SXM)

- Distance: 45 km





- Airline: Winair
- Aircraft: De Havilland-Bombardier DHC6 Twin Otter
- Flight Time: 15 minutes
- Frequency: 55 flights weekly

This flight connects Saba with St Maarten's Princess Juliana International Airport (SXM) on the Dutch side of the island. St Maarten/St Martin, renowned for its dual airports, features prominently in regional air travel, with this route being one of the shortest connections in the Caribbean.

4. St Maarten (SXM) to St Eustatius (EUX)

- Distance: 61 km
- Airline: Winair
- Aircraft: DHC6 Twin Otter
- Flight Time: 20 minutes
- Frequency: 56 flights weekly

This route is the most frequent among the Top 10 shortest commercial flights, operating 56 flights weekly. It highlights the importance of air travel in the Caribbean, with six of the ten shortest flights globally located within the region.

5. Bonaire (BON) to Curacao (CUR)

- Distance: 74 km
- Airline: Winair
- Aircraft: Saab 340
- Flight Time: 35 minutes
- Frequency: 17 flights weekly

This 25-minute flight connects Bonaire and Curacao, part of the ABC Islands. These islands—Aruba, Bonaire, and Curacao—are aligned geographically from west to east.

Although the Aruba-Curacao route spans 125 km and exceeds this list's criteria, the Bonaire-Curacao segment fits comfortably among the world's shortest flights.

6. Kasane (BBK) to Victoria Falls (VFA)

- Distance: 77 km
- Airline: Airlink
- Aircraft: Cessna Light Aircraft (Single Turboprop)
- Flight Time: 35 minutes
- Frequency: 14 flights weekly

This scenic route between Botswana and Zimbabwe covers 77 kilometers. With 420 scheduled flights during the summer season, it highlights the route's popularity, especially among tourists visiting the world-famous Victoria Falls.

7. St Vincent (SVD) to Carriacou (CRU)

- Distance: 79 km
- Airline: InterCaribbean Airways, Sunrise Airways
- Aircraft: DHVilld-Bombardier DHC6 Twin Otter
- Flight Time: 35 minutes
- Frequency: 10 flights weekly

This route offers a convenient daily connection between St Vincent and Carriacou, catering to tourists and residents alike. With a weekly frequency of 10 flights, it allows for flexible day-trip travel, emphasizing its importance in local connectivity.

8. Dammam (DMM) to Bahrain (BAH)

- Distance: 87 km
- Airline: Gulf Air
- Aircraft: Airbus A320neo
- Flight Time: 40 minutes
- Frequency: 10 flights weekly

As the only Middle Eastern route on this list, this 87-kilometer flight connects Dammam, Saudi Arabia, with Bahrain.

Using the Airbus A320neo, this route accommodates over 120 passengers per flight, showcasing its role in regional business and leisure travel.

9. St Maarten (SXM) to St Kitts (SKB)

- Distance: 90 km
- Airline: Winair
- Aircraft: DHVilld-Bombardier DHC6 Twin Otter
- Flight Time: 30 minutes
- Frequency: 16 flights weekly

This is the fourth and final appearance of St Maarten/St Martin on this list. Known for its proximity to Maho Beach, Princess Juliana International Airport (SXM) offers breathtaking views for aviation enthusiasts. This route connects the Dutch side of the island with St Kitts, a popular tourist destination in the Leeward Islands.

10. Fort Lauderdale (FLL) to Bimini North SPB (NSB)

- Distance: 95 km
- Airline: Silver Airways, JetBlue, United
- Aircraft: Cessna Light Aircraft (Single Turboprop)
- Flight Time: 45 minutes
- Frequency: 17 flights weekly

The flight from Fort Lauderdale to Bimini provides a quick 45-minute journey, making it a popular choice for American visitors heading to the Bahamas for leisure activities like fishing and snorkeling.

GLOBAL AIRCRAFT LEASING COMPANIES 2025



Namukasa Joan

Fleet composition heavily favors narrow-body aircraft, particularly the A320 family, which comprises over 70% of the total leased fleet. The geographical distribution shows a strong presence in Asia and North America, reflecting the robust aviation market growth in these regions.

Here's the list of companies in the global aircraft leasing industry as of January 2025 by the AvBench.

1. AerCap

- Fleet: 1,669 aircraft
- Portfolio Value: \$61.99B

AERCAP maintains a robust aircraft leasing portfolio of 1,669 aircraft valued at \$61.99B, showing a minimal decline (-0.7%) from December 2023.

The fleet composition reflects a strong focus on modern aircraft, with 50% of the portfolio under 10 years old. Regional distribution showcases Asia leading with 577 aircraft (-0.7% YoY), followed by North America with 462 aircraft (-1.3%), and Europe with 376 aircraft (-0.3%).

Smaller presences exist in South America (147 A/C, +5%), Africa (88 A/C, 7.4%), and Oceania.

The aircraft family breakdown is dominated by narrow-body aircraft, particularly the A320 family. The A320neo leads with 467 aircraft, showing significant growth (+54 A/C, +13.1%), while the A320 fleet comprises 448 aircraft despite a reduction (-26 A/C, -5.5%).

2. Avolon

- Fleet: 633 aircraft
- Portfolio Value: \$30.68B

Avolon shows positive growth with a 3.6% increase in fleet size from 2023. Their portfolio focuses heavily on newer aircraft, with a significant A320neo orderbook of 253 aircraft.

The lessor demonstrates strong market positioning across key aviation markets, particularly in Asia and Europe. Their strategy emphasizes maintaining a young fleet age profile while expanding their customer base among both traditional and low-cost carriers.

3. SMBC Aviation

- Fleet: 611 aircraft
- Portfolio Value: \$15.87B

SMBC Aviation maintains a substantial portfolio focusing

on narrow-body aircraft, particularly the A320 family.

Their order book includes 170 A320neo aircraft, reflecting a strong commitment to fleet modernization. The company maintains a strategic presence across major aviation markets, with particular strength in Asia-Pacific and European regions. Their relatively lower portfolio value compared to fleet size suggests a strategic focus on narrow-body aircraft.

4. BOC Aviation

- Fleet: 576 aircraft
- Portfolio Value: \$30.15B

BOC Aviation demonstrates strong growth with an 8.1% fleet increase from 2023. Their portfolio value indicates high-value assets, suggesting a significant portion of new-generation aircraft.

Their orderbook of 106 A320neo and 71 737 MAX aircraft shows balanced investment in both major narrow-body platforms. The company maintains a strong presence in Asian markets while expanding globally.

5. BBAM

- Fleet: 562 aircraft
- Portfolio Value: \$22.92B

BBAM shows steady growth with a 1.3% fleet increase from 2023. Their portfolio focuses on popular narrow-body aircraft, particularly the 737-800. The company's strategy appears to balance portfolio value with fleet size, maintaining strong positions in both developed and emerging markets. Their asset management approach emphasizes operational efficiency and market adaptability.

6. Air Lease Corporation

- Fleet: 420 aircraft
- Portfolio Value: \$19.50B

Air Lease Corporation shows a slight decline (-1.9%) but maintains a strong portfolio focused on new technology aircraft.

Their orderbook of 133 A320neo and 68 737 MAX aircraft demonstrates commitment to fleet modernization. Strategic focus on the A320 family and diversified customer base across major aviation markets supports stable portfolio performance. Their balanced geographical distribution minimizes



regional exposure risks.

7. DAE Capital

- Fleet: 401 aircraft
- Portfolio Value: \$21.77B

DAE Capital experienced a -6.1% fleet reduction but maintains strong portfolio value. Focus on 737-800 and A320 family aircraft provides stability through proven asset types.

Their Middle East base offers a strategic advantage for serving emerging markets while maintaining a strong presence in established regions. Portfolio value suggests a high-quality asset management strategy.

8. Aviation Capital Group

- Fleet: 400 aircraft

- Portfolio Value: \$12.90B
- Aviation Capital Group shows positive growth (+3.6%) with a focused A320 family strategy. Their orderbook of 33 A320neo and 83 737 MAX aircraft indicates balanced platform investment.

A strong presence in the North American market while expanding in Asia-Pacific demonstrates strategic market positioning. Conservative portfolio value suggests an emphasis on stable, proven asset types.

9. ICBC Leasing

- Fleet: 379 aircraft
 - Portfolio Value: \$15.01B
- ICBC Leasing demonstrates strong growth (+4.7%) with a significant A320



family concentration.

Their strategic position in Asian markets, particularly China, provides a stable base for expansion. Portfolio value reflects a focus on newer technology aircraft while maintaining a diverse customer base across regions.

10. CDB Aviation

- Fleet: 367 aircraft
- Portfolio Value: \$13.38B

CDB Aviation shows steady growth (+0.5%) with a balanced portfolio approach. A strong orderbook of 122 A320neo aircraft indicates a commitment to fleet modernization.

Their Chinese backing provides a strong financial foundation while maintaining a global market presence. A strategic focus on narrow-body aircraft supports stable portfolio performance.

11. Macquarie AirFinance

- Fleet: 335 aircraft
- Portfolio Value: \$9.10B

Macquarie AirFinance shows a slight decline (-1.8%) but maintains a stable portfolio. Focus on A320 family aircraft with balanced regional distribution.

Their orderbook of 20 A320neo and 40 737 MAX aircraft demonstrates a commitment to fleet renewal while maintaining a conservative growth strategy.

12. ORIX Aviation

- Fleet: 293 aircraft
- Portfolio Value: \$12.26B

ORIX Aviation shows minimal decline (-1.3%) with strong portfolio value relative to fleet size. Focus on 737-800 and A320 family provides a stable asset base.

Their Japanese heritage supports a strong presence in Asian markets while maintaining global diversification.

13. Carlyle Aviation Partners

- Fleet: 221 aircraft
- Portfolio Value: \$6.50B

Carlyle Aviation Partners shows significant growth (+49.3%) through strategic acquisitions. The portfolio focuses on

narrow-body aircraft with an emphasis on the A320 family. Their private equity backing provides financial flexibility for opportunistic growth while maintaining disciplined asset selection.

14. Jackson Square Aviation

- Fleet: 211 aircraft
- Portfolio Value: \$2.96B

Jackson Square Aviation shows a decline (-18.8%) but maintains a focused portfolio strategy. Conservative portfolio value suggests an emphasis on mature assets. Their orderbook of 21 737 MAX aircraft indicates a measured approach to fleet modernization.

15. Nordic Aviation Capital

- Fleet: 210 aircraft
- Portfolio Value: N/A

Nordic Aviation Capital shows positive growth (+13%) with a unique focus on regional aircraft, particularly ATR 72. Their specialized strategy in the regional aircraft market provides a competitive advantage in specific market segments. Strong presence in European and North American regional markets.

16. CALC

- Fleet: 208 aircraft
- Portfolio Value: \$5.60B

CALC demonstrates portfolio optimization with a slight decline (-6.7%). A strong orderbook of 103 A320neo aircraft shows commitment to fleet modernization. Their Asian market focus provides a stable base while expanding their global presence. Conservative portfolio value reflects measured growth strategy.

17. CMB Financial Leasing

- Fleet: 196 aircraft
- Portfolio Value: \$8.90B

CMB Financial Leasing shows a decline (-6.2%) but maintains strong portfolio value. Focus on A320neo aircraft with a significant Chinese market presence.

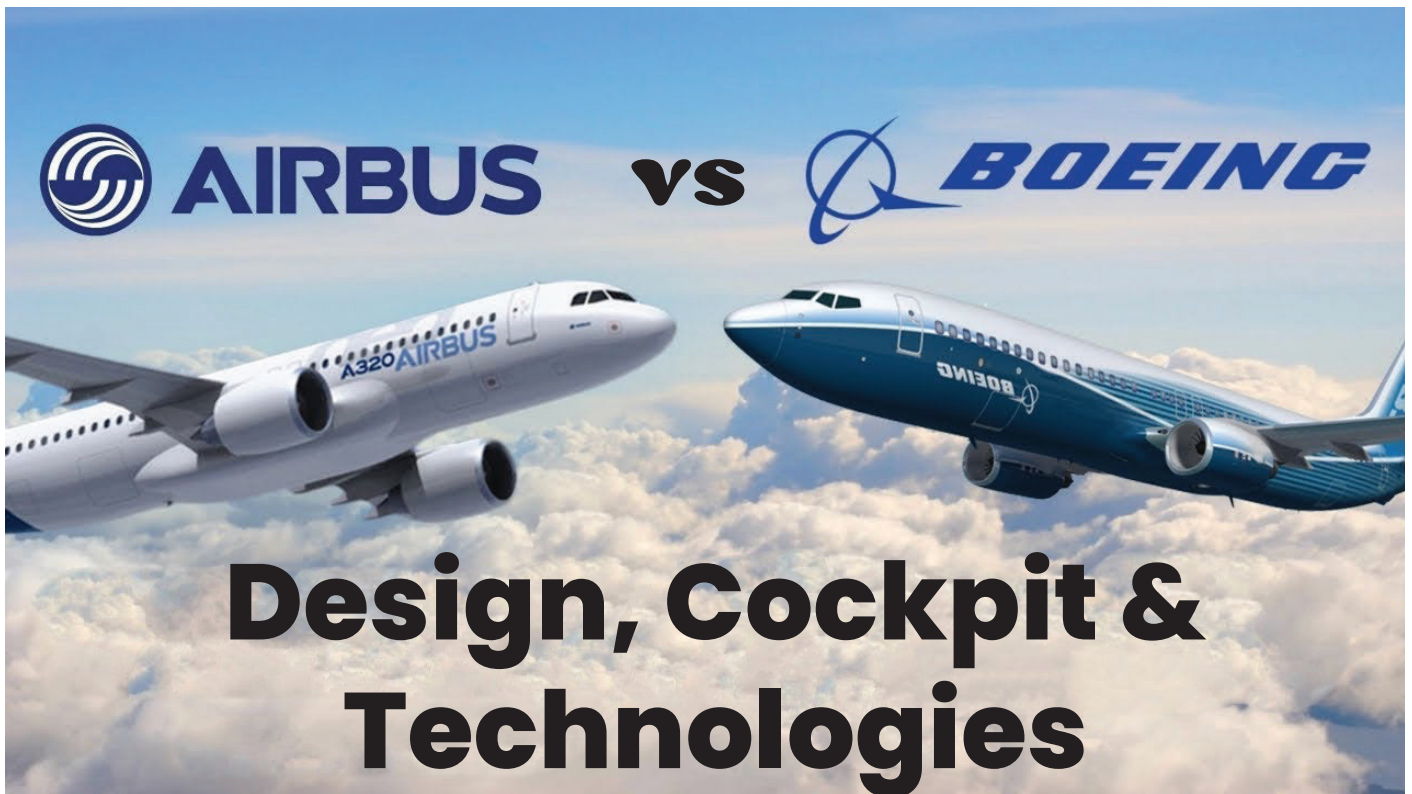
Source: Ch-aviation, Avbench



ROSOBORONEXPORT



ROSOBORONEXPORT



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Airbus and Boeing have been in a competitive duopoly in the market for big jet airliner aircraft since the 1990s. The following key points set apart these two aircraft manufacturers.

1- Place of Origin

The first noticeable distinction between Airbus and Boeing is in production. Boeing is an American aerospace company. Airbus, on the other hand, is a French company that makes airplanes. But Boeing predates Airbus by about two decades, having been founded in 1916 as opposed to 1970. Some people call Boeings "ancient machines" and claim that Airbus is more receptive.

2- The Design of the Nose & Windshield

Both planes have distinctively different front ends, making them easy to tell apart. The nose of an Airbus is more rounded than that of a Boeing, which is more pointed. When viewing the plane from the front, the difference is most obvious. The shape of their noses is a quick and easy way to tell them apart.

3- Landing Gear

As the name implies, the landing gear is the undercarriage of a plane or spaceship that is employed during takeoff and landing. The landing gear on an Airbus is longer up front than on a Boeing. Airbuses' rear landing

gear leans backward, while Boeing's leans forward. This distinction is more obvious when comparing two planes side by side than when examining either one individually.

4- Design of the Engine

One of the most important parts of an airplane is the engine, and the two planes' engines are completely different. The Boeing 737 and Airbus A320 families are where you'll notice the most contrast. There is a distinction between a Boeing and an Airbus that may be seen in the planes' engines. The Boeing's cowling is nearly flat at the base.

The cowling of the Airbus, on the other hand, is nearly





round in shape and completely round. The Boeing 737 engine also requires less clearance from the ground. As a result, you can identify a Boeing plane by its lower ground clearance and its flat-bottomed cowlings.

5- Control Systems

A 'fly-by-wire' system is used in the majority of current Airbus aircraft. The system converts the airplane's manual controls into an electronic user interface. The movements of flight control are translated into electrical signals that are sent via wires, and the flight control computers then determine how to move the actuators of each control surface to deliver the ordered reaction, hence the name.

6- The Cockpit Design

The cockpits of Boeing aircraft are more conventional in design, having a large number of physical controls. Pilots upgrading from older aircraft may find this layout more familiar.

But Airbus cockpits are more cutting-edge and minimalist, thanks to the use of digital displays and touchscreens. This method streamlines data storage and organization, allowing pilots faster access to vital statistics.

7- The Tail

The tail sections of Airbuses and Boeings are shaped

differently. On the tail part of an Airbus, the fuselage continues to lie flat, but on a Boeing, it slopes downward. When viewing the plane from the side, as opposed to the rear, you can clearly see this distinction.

8- The Lighting

There are many different kinds of lights on board modern airliners, all of which contribute to the aircraft's safe operation. There are some lights that are only turned on during certain phases of the flight, like when the plane is taxiing, while others remain on the whole time.

There are two strobe lights, one on each wingtip, on an Airbus plane. These lights flash in rapid succession according to a predetermined schedule. However, only a single strobe light is mounted on each wing of Boeing planes. This is why the lights blink at set intervals. It's worth noting that the wing strobes and the rear strobes each flash simultaneously.

Comparison: Airbus vs. Boeing

In 1916, William E. Boeing started the American aircraft business Boeing. Boeing, a company that has been around for more than a century, has had a major impact on the development of the aerospace sector. In contrast, the European cooperation Airbus was founded in 1970 to pool the aeronautical expertise of France, Germany, and the United Kingdom. Airbus's remarkable expansion over the past half-century has made it a formidable rival to Boeing around the world.

Market Dominance

Boeing and Airbus are formidable competitors in the aerospace industry, always vying for market share and orders. Thanks to the success of the A320neo family, Airbus has maintained a little larger proportion of the market in recent years. New aircraft models are constantly being developed by both firms in an effort to outdo one another and gain a larger piece of the market.

Production & Delivery

Airbus's rate of aero plane deliveries to clients is higher than that of Boeing's. Boeing is making a comeback, but the pace of its deliveries has been slower than expected, despite the fact that the company has hundreds of planes ready to go with just minor finishing touches.

The company is likewise having trouble maintaining a steady production rate of 31 planes each month. Airbus hopes to produce as many as 75 aircraft per month from its popular Airbus A320neo family, but the European jet manufacturer is having trouble keeping up with deliveries. In addition, Airbus is delaying supplier deliveries from 2022 to 2023, which suggests a discrepancy between the stated and real production rate.

Therefore both companies are vulnerable to external factors such as economic downturns, geopolitical tensions, and regulatory shifts.





HOW **ALIX** IS REDEFINING LUGGAGE IDENTIFICATION



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Every year, the air travel industry handles 4 billion bags, with 28 million being lost or misplaced. This leads to substantial costs, affecting not only the airlines' finances but also their reputations.

As global passenger traffic is expected to double in the coming decades, the scale and impact of luggage mishandling and the resulting costs will only intensify, placing greater pressure on both operational efficiency and customer trust.

The problem with luggage repatriation

Most travellers would agree that packing for a trip is tedious, but the real anxiety stems from the fear of their luggage being misplaced or, worse, lost in transit.

A bag is considered unidentifiable when it loses its physical tag and lacks any visible information to determine its owner. At that point, a long and tiresome process begins to try to return the bag to its owner.

In the meantime, the traveller can request compensation from the airline to cover essential purchases while waiting for their luggage to be located and repatriated.

Existing solutions primarily rely on textual descriptions. Travelers who have lost their luggage provide a description at the airline's baggage claim desk, while baggage handlers simultaneously create inventories and descriptions of the untagged bags they find.

If the traveller's description matches a bag, a new tag is printed, and the bag is typically reunited with its owner within 24 to 36 hours. However, if the bags remain unidentifiable, airline operators must open the luggage to attempt identification. This process is not only slow but can also be seen as an invasion of privacy.

If the owner still cannot be identified, legal obligations—depending on the region—require that the luggage be searched multiple times before being stored for up to six months. Storing tens of thousands of unclaimed bags is expensive and labour-intensive, requiring large warehouses and significant manpower.

Furthermore, under the Montreal Convention, airlines may have to compensate travellers up to \$1,500 for lost luggage.

What happens when a bag has to be offloaded?

Another issue arises when a passenger is a no-show or needs to leave a flight. The luggage must be quickly located and removed from the aircraft. Currently, this process requires a baggage handler to manually scan each bag in the plane's hold—a time-consuming task that can delay the flight or cause the airline to



miss its take-off slot.

Additionally, prolonged delays may cause the flight crew to exceed their working hours, requiring a replacement team and further increasing costs.

In short, existing luggage solutions fail to efficiently address the challenges of baggage management in terms of peoplepower, time, and operational costs.

IDEMIA Public Security's ALIX™ solution: a new approach revolutionizing luggage identification

Through an innovative AI and biometric-powered approach, IDEMIA's Public Security's Automated Luggage Identification eXperience (ALIX) modernises the luggage management process, reducing costs and enhancing the passenger journey.

ALIX digitalises and automates luggage identification by assigning each bag with an augmented digital tag. This scalable solution uses either photos or relevant information to identify bags in various scenarios.

This includes seamless bag repatriation, rapid offloading, and the prevention of fraudulent damaged bag claims. ALIX has been in use at Paris Charles de Gaulle Airport since 2023 and helps Air France's operators locate bags that have lost their physical

tags. With a high matching rate—already exceeding 90% and improving.

ALIX has reduced operational delays and improved the overall efficiency of luggage handling at one of Europe's busiest airports. In addition to seamless bag repatriation, ALIX also plays a crucial role in preventing fraudulent damaged luggage claims.

It captures high-quality images of each bag as soon as it is checked in. In the event of a damage claim, airlines can refer to these images to verify whether the damage occurred during transit or if the claim is fraudulent.

ALIX assists ground staff in quickly offloading bags without the need to manually scan tags, simply by providing images of the bags that need to be retrieved—a capability which becomes mission critical during periods of mass disruption.

ALIX leverages IDEMIA Public Security's 50+ years of expertise in AI and biometrics. The same best-in-class algorithms used for people have now been extended to baggage identification.

As air travel continues to evolve, innovations like ALIX will be key to creating a more seamless, stress-free journey for travellers and a more streamlined operation for the industry.

Bridging the Workforce Challenge in the Aviation Industry

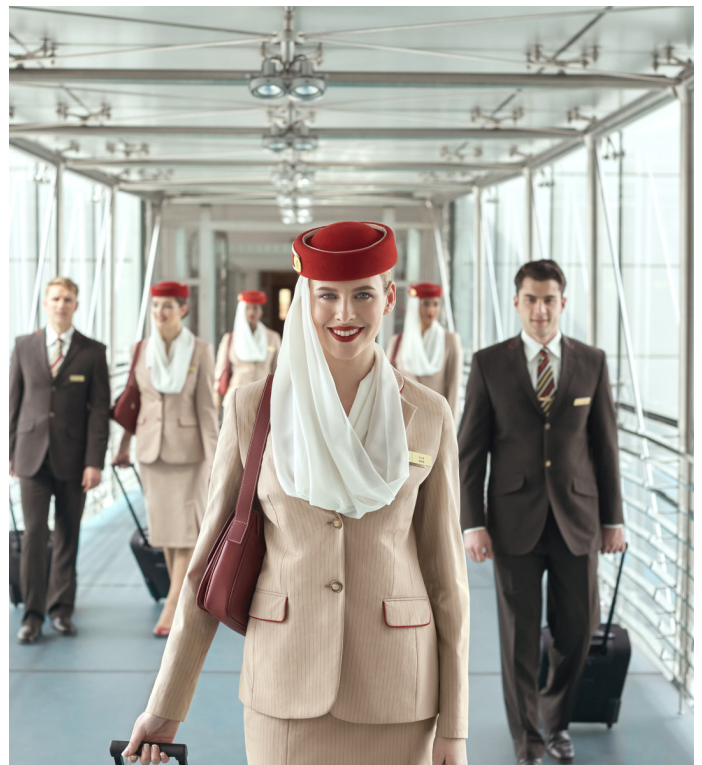


Jane Makena

As the aviation industry soars forward, a looming challenge waits on the horizon: a critical workforce gap that could disrupt its path to growth, operational efficiency, and technological advancement. The industry faces an urgent need to recruit, develop, and retain skilled professionals across a broad spectrum of roles, from pilots and engineers to air traffic controllers and maintenance technicians.

This challenge is amplified by both a wave of retirements and the rapid evolution of aviation technologies, demanding skills that are often scarce or still emerging. A proactive, collaborative approach is essential for sustaining the industry's momentum and fostering a workforce that can navigate the demands of modern aviation.

The Retiring Workforce: Knowledge Gaps and Operational Challenges



As a significant proportion of the current aviation workforce approaches retirement age, industry leaders find themselves at a pivotal point. Almost half of the workforce in critical roles is expected to retire in the next decade, a mass departure that not only opens career opportunities for new talent but also poses a risk of substantial knowledge loss.

Skilled engineers, technicians, and seasoned professionals bring years of expertise, accumulated through hands-on experience and deep technical understanding. Their departure will inevitably create an experience gap that cannot be filled overnight. It is crucial for organizations to implement structured knowledge transfer programs to preserve the insights and skills of retiring professionals, bridging the knowledge gap through mentorship and cross-generational learning.

New Skill Demands: Bridging Traditional and Emerging Knowledge

Technological advancements, sustainability goals, and regulatory shifts are transforming the aviation landscape, and with them, the skills required. Emerging technologies like artificial intelligence (AI), machine learning, data analytics, and electric propulsion systems are reshaping aviation operations, demanding a workforce proficient not only in traditional aviation principles but also in cutting-edge innovations. Sustainable Aviation Fuel (SAF), electric aircraft systems, and AI-based optimization solutions, for instance, are rapidly becoming mainstream, and so too must the skills to manage and maintain them.

Research conducted between MIT and Delta Airlines, for example, highlights AI and data analytics' potential to optimize flight routes, reduce fuel consumption, and mitigate environmental impacts from contrails. This kind of knowledge, spanning both technical and environmental dimensions, is crucial as the industry seeks to balance safety and sustainability.

New Generations

Attracting talent to the aviation sector has proven challenging, particularly as younger generations often perceive other fields, such as information technology or renewable energy, as more stable or innovative. Lengthy



training processes, high initial costs, and regulatory hurdles for technical roles further deter potential recruits. To address this, the aviation industry must actively promote its best qualities, emphasizing career stability, global impact, and technological innovation it offers.

Retaining Talent: Developing a Culture of Growth and Inclusion

Securing talent is only one piece of the puzzle; retaining it is equally critical. Organizations must invest in continuous training programs that allow employees to adapt to technological shifts while advancing their careers. Establishing mentorship programs, where new hires can learn directly from seasoned professionals, is one effective way to transfer knowledge and foster engagement.

The aviation industry cannot address its workforce challenges in isolation. Collaboration among industry stakeholders, educational institutions, and government agencies is essential. Industry associations, for instance, play a crucial role in advocating for policies that support workforce development, such as funding for training programs and providing scholarships to aspiring aviation professionals.

Public-private partnerships and government support can be instrumental in expanding recruitment pools and widening opportunities for underrepresented groups. By investing in programs that combine work-integrated learning and academic studies, the aviation industry can broaden its talent pipeline while building an inclusive workforce prepared for the future. Navigating a Transformative Era

Aviation is on the cusp of a transformative era, poised to benefit from advancements that promise greater efficiency, sustainability, and operational excellence. Yet, achieving these goals hinges on addressing the pressing workforce challenge. By tackling the talent gap through targeted recruitment, continuous professional development, and collaborative efforts, the aviation industry can cultivate a skilled, adaptable workforce capable of steering the sector forward.





Integrating Emerging Technologies into Airport Operations

Paul Mwangi



SEA Milan Airports is implementing a strategy that is focused on improving the customer experience by making the passenger journey frictionless and contactless, reducing the time to gate and, at the same time, improving the overall experience.

SEA started with the recent renovation of Linate, Milan City Airport, to completely redesign the passenger experience and implement new technologies into airport operations aimed at applying 'self' services, thus allowing passengers to navigate through the airport easily and quickly.

In fact, Linate aims to be one of the best European city airports serving Milano, one of the most dynamic cities in Europe and Italy, providing great comfort and wellbeing to passengers in a sustainable environment leveraging on technological innovation.



Biometric technology

To pursue this goal, just a few days before the pandemic, in 2020, SEA launched brand-new biometric technology at Linate, FaceBoarding, with the aim to make passengers' journeys seamless, faster and reduce the waiting time at different touchpoints throughout the terminal.

FaceBoarding, based on biometric facial recognition, enables passengers, after enrollment at the airport or through the mobile app, to go through check-in, security and boarding with no need to show boarding passes and

ID documents.

SEA recently awarded the contract for the full extension in Linate, in 2024, of FaceBoarding to all security turnstiles and boarding gates making Linate one of the first fully biometric airports. Moreover, SEA is exploring opportunities for expanding its business by better exploiting biometric technology, such as for access to parking lots and VIP lounges and shopping in the retail area.

SEA is also discussing the possibility of implementing FaceBoarding in Malpensa. SEA, considering the sensitivity of biometric data, has taken all the countermeasures offered by technology to make this solution reliable, secure, and fully GDPR compliant and has positively passed the audit by the Italian Data Protection Authority.

Smart security

Furthering the goal of a seamless and contactless journey, SEA inaugurated its new security checkpoint in Linate in October 2020, becoming one of the first fully EDS-CB equipped airports in Europe.

SEA redesigned the security checkpoint implementing the

'smart security' concept – a vast array of technologies and neuroscience applied to architectural design to reduce the anxiety level of passengers.

Thanks to computed tomography (CT) screening technology on hand luggage, SEA enhanced both the security level and the passenger experience as the new detection technology allows passengers to keep devices and liquids (even above 100ml) in their cabin baggage.

Smart security not only improves passenger experience, but allowed SEA to deal with the difficulty of the labour market. In particular, the efficiency brought by the new machines (over 300 pax/h during peaks) reduced the personnel needed at the checkpoint.

Self-service technology

Finally, SEA is offering a self-bag-drop solution integrated with FaceBoarding to all its passengers travelling with hold luggage in Linate, allowing them to exploit biometric recognition to check the baggage autonomously. In Malpensa Terminal 1, SEA is testing self-bag-drop technology, fully manageable on the airline mobile app installed on passengers' personal smartphones. The process is divided into two steps.

At the drop-off, similarly, the passenger will check-in their luggage and interact with the belt and the tag scanner with its device. All passengers travelling from Malpensa Terminal 2 are required to autonomously check their luggage at the self-bag-drop counter, as manual check ins are only available in case of hardware or software disruption of the automatic system.

From an intrinsic operational point of view, the use of technology enhances a collaborative approach between all stakeholders present at the airport. SEA is accelerating the creation of an APOC (Airport Operations Centre)

APOC enables collaboration and sharing with all airport stakeholders that have access to the same information with the goal of optimizing operations, reducing unexpected critical issues and improving punctuality. The software platform will offer a clear and uniform view of the flow of passengers at the airport, of the baggage handling processes.

Achieving a higher situational awareness will guarantee a collaborative decision-making process between the actors involved and a greater level of coordination, fundamental for reacting promptly to countless different scenarios and possible critical issues.

Furthermore, APOC acts as a data collection basin, which could be the basis for what-if analysis and implementation of algorithms useful for the development of increasingly accurate and flexible traffic forecasts that will ultimately improve the passenger experience.

Credit: Alessandro Fidato

FLYING THROUGH MILITARY OPERATIONS AREAS (MOAs)



What you need to know

Philberth Maximillian

While VFR flight through Military Operations Area (MOA) doesn't require any clearance or communications, it's not the best idea. Here are some tips to handle MOAs safely.

What to Know About MOAs

MOAs are places where military training occurs. As a VFR pilot, you can fly through an active MOA without talking to anyone. However, we don't recommend it, because it can be hard to see military traffic when they're maneuvering at high speed. With some planning and communication (and flight following), flying VFR through a MOA can be a relatively normal occurrence.

Finding Them On Your Sectional Chart MOAs have a magenta hatched border, and they're labeled starting with the MOA name, followed by the letters "MOA". In the example below, "LEMOORE A MOA" is the highlighted MOA. MOA subdivisions may be identified by a suffix consisting of a number, letter, cardinal point, or the terms "High" or "Low," (e.g., Moody 1; Gamecock B; Tiger North; Smoky High).

LEMOORE A MOA Special Use Airspace	
Type	Military Operations Area
Designator	LEMOORE A
Name	LEMOORE A MOA
Upper Limit	17,999' MSL
Lower Limit	5,000' MSL
COMMUNICATIONS	
OAKLAND ARTCC (Civilian)	134.225
ADDITIONAL INFORMATION	
Activation	By NOTAM
Hours	
0800-2300, Monday-Thursday	
0800-1800, Friday	
1000-1800, one Saturday per month, by NOTAM	
1300-2100, one Sunday per month, by NOTAM	
Other times by NOTAM	
OPERATIONAL NOTES	



You'll find MOAs all across the country. Some are used more than others, which is why it's always a good idea to pick up VFR flight following when you can. When military aircraft are active in the MOA, it's best to give them a little extra room.

When Are MOAs Active?

If you look on the side of your VFR sectional, you'll find the details of the MOA, including:

- MOA Name
- Altitudes (MSL)
- Time of Use (Local)
- Controlling Agency
- Communication Frequency

If you're using ForeFlight, you can find MOA information simply by "long pressing" on the airspace itself. Click "details" next to the name of the MOA to find out everything you need to know.

Is The MOA "Hot"? Flight Service and Center Control Can Help

Just because MOAs have a scheduled active time, doesn't necessarily mean there are military aircraft in them making them "hot". The best way to figure out if a MOA is active is to call Flight Service or Center. They can let you know if there is scheduled activity, or if there are aircraft actively operating in a MOA.

How do you ask? Just call up Center or Flight Service on their frequency, and ask if the MOA you're near is active. It's that simple.

Can You Get An IFR Clearance Through An Active MOA?

According to AIM 3-4-5, "Whenever a MOA is being used, nonparticipating IFR traffic may be cleared through a MOA if IFR separation can be provided by ATC. Otherwise, ATC will reroute or restrict nonparticipating IFR traffic."

In the real world, it's rare to get an IFR clearance through an active MOA. The best plan of action, if you're filing IFR, is to route around any MOAs on your flight.

Temporary MOAs Exist

According to the FAA, Temporary



MOAs are designated to accommodate the military's need for additional airspace to periodically conduct exercises that supplement routine training. When existing airspace is inadequate to accommodate these short-term military exercises, temporary MOAs may be established for a period not to exceed 45 days.

On a case-by-case basis, Airspace Regulations and ATC Procedures Group may approve a longer period if the proponent provides justification for the increase.

Once a temporary MOA is approved, the military is responsible for publicizing the exercise within 100

miles of the affected airspace.

MOAs In Class G Airspace

MOAs may be designated in Class G airspace. Using agencies and pilots operating in such MOAs should be aware that nonparticipating aircraft may legally operate IFR or VFR without an ATC clearance in these MOAs. Pilots of nonparticipating aircraft may operate VFR in Class G airspace in conditions as low as 1 statute mile flight visibility and clear of clouds.

Because of this, the FAA requires MOA operations conducted within Class G airspace to be signed off with a letter of agreement between the controlling and using agencies.

Saudi Airports Kick off World's Largest Passenger Flow Tech Rollout

Veovo, DTP and SAMI Advanced Electronics are providing passenger flow analytics with LiDAR to all Saudi Arabian airports to improve traveller journeys.

Saudi Arabia's General Authority of Civil Aviation (GACA) and airport operator MATARAT are rolling out an advanced LiDAR and passenger flow management solution across the country's 27 airports—the world's largest implementation of its kind—as part of the Kingdom's vision to lead the region in airport technology and innovation.

SAMI Advanced Electronics, a leading Saudi ICT provider, has partnered with DTP to deliver the solution, which uses Veovo's Queue and Flow Management system alongside DTP's tNexus smart mobile platform. This collaboration provides insights into passenger movement, dwell times, and queuing patterns within terminals.

With millions of travellers passing through Saudi airports each year, this system will help GACA and MATARAT proactively address bottlenecks in critical areas such as check-in, immigration, security, and transfer zones, thus reducing delays and enhancing the passenger experience.

Abdulaziz Aldahmash, Executive Vice President for Quality and Customer Experience at GACA, commented: "This is a transformative initiative that will redefine the passenger experience at Saudi Arabia's airports: a state-of-the-art queue management system across all Saudi airports. This isn't just about convenience, it's about transparency and efficiency. GACA, the airports' leaders and all the stakeholders can now monitor operations, optimize resources, and ensure fair service across all airports."

Veovo's People Flow and Queue Management solution analyses people's movement using data from LiDAR sensors,

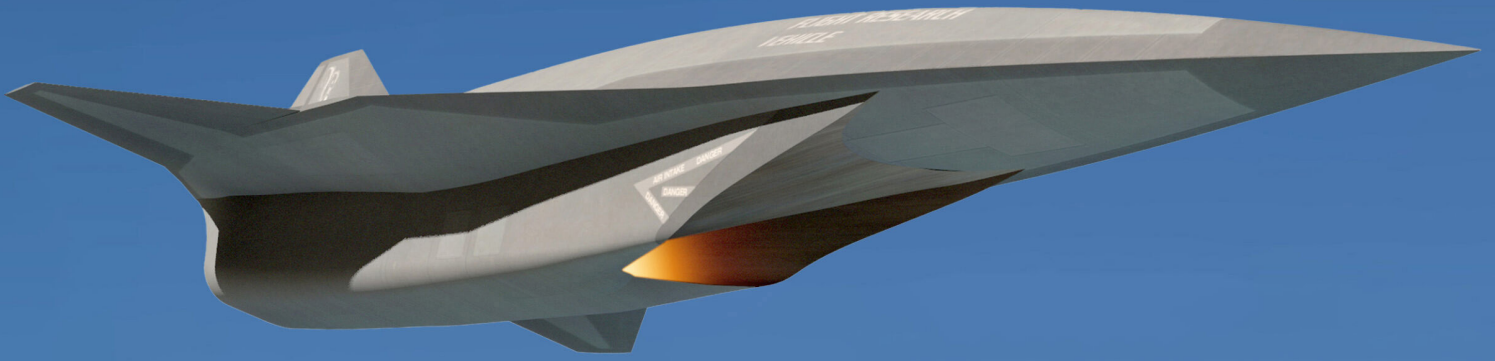


stereo cameras, and WiFi/BLE infrastructure. This sensor-agnostic approach was critical for a project of this size, ensuring scalability and flexibility to meet the demands of varying airport layouts and architecture. DTP then delivers this insight to all stakeholders, including airport employees and officials, via its tNexus Airport View mobile application, which provides real-time metrics, alerts, and flight information.

Together, the partners transform queue management by measuring and predicting wait times while delivering broader processing insights for a more accurate assessment of passenger flow.

This deeper insight allows for proactive action to prevent congestion, while detailed productivity analysis supports ongoing performance improvement. The solution also helps operators plan capacity by recommending the optimal number of processing lines based on real-time and forecasted passenger flow. Designed for multi-airport and multi-terminal use, it ensures consistent, efficient operations across all 27 airports.

The solution is being rolled out to all airports in a phased approach over the next 18 months, with technology already installed at Jeddah and Riyadh airports.



HYPERSONIC SR-72 CONCEPT

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The Lockheed Martin SR-72, is an American hypersonic UAV concept intended for intelligence, surveillance and reconnaissance (ISR) proposed privately in 2013 by Lockheed Martin as a successor to the retired Lockheed SR-71 Blackbird. In 2018, company executives said an SR-72 test vehicle could fly by 2025 and enter service in the 2030s.

Lockheed Martin had been collaborating with Aerojet Rocketdyne since 2006 to develop an appropriate engine. After the 2008 cancellation of the HTV-3X, the company used its scramjet technology for the SR-72 engine.

The SR-72 was envisioned to have an air-breathing propulsion system that could handle subsonic, transonic, supersonic, and hypersonic speeds.

Turbojet engines can work at zero speed and usually perform best up to Mach 2.2. Ramjets, using aerodynamic compression with subsonic combustion, perform poorly below Mach 0.5, are most efficient

around Mach 3, and can go up to around Mach 6. The SR-71's engines converted to low-speed ramjets by redirecting the airflow around the core and into the afterburner for speeds greater than Mach 2.5.

Finally, scramjets (supersonic combustion ramjets) cover the range of high supersonic to hypersonic speeds. The SR-72 was to use a turbine-based combined cycle (TBCC) system to use a turbine engine at low speeds and a scramjet engine at high speeds. The turbine and ramjet engines shared common inlet and nozzle, but with separate airflow paths.

At speeds of Mach 5 and above, aerodynamic heating creates temperatures hot enough to melt conventional metallic airframes, so engineers considered making critical components from composites such as high-performance carbon, ceramic, and metal mixes, which have been used in intercontinental ballistic missiles and the retired Space Shuttle. 2014 NASA contracts

In December 2014, NASA awarded Lockheed Martin a contract to study the feasibility of building the SR-72's propulsion system using existing turbine engine technologies. The \$892,292 (~\$1.13 million in 2023) contract funded a design study to

determine the viability of a TBCC propulsion system by combining one of several current turbine engines, with a very low Mach ignition Dual Mode Ramjet (DMRJ).

NASA previously funded a Lockheed Martin study that found speeds up to Mach 7 could be achieved with a dual-mode engine combining turbine and ramjet technologies. The problem with hypersonic propulsion has always been the gap between the highest speed capabilities of a turbojet, from around Mach 2.2 to the lowest speed of a scramjet at Mach 4.

In May 2015, it was reported that the SR-72 was envisioned as an ISR and strike platform, but no payloads were specified, likely because current payloads would be insufficient on an aircraft flying at Mach 6 up to 80,000 feet (24,400 m) high requiring hundreds of miles to turn. New sensors and weapons would likely have to be created specifically to operate at such speeds.

In November 2018, Lockheed Martin said that a prototype of the SR-72 was scheduled to fly by 2025. In addition the company stated that the aircraft is to be equipped to fire hypersonic missiles. The SR-72 could enter service in the 2030s.



Uganda Civil Aviation Authority is upgrading Entebbe International Airport for a better passenger experience



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