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END OF AN ERA:

Queen of the Skies Boeing 747 ends production

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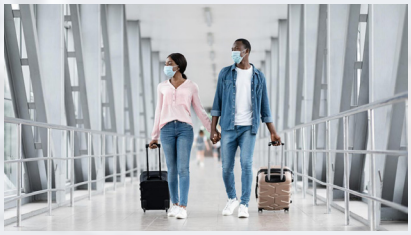


FIRST EVER MEETING OF ALL HEADS OF REGIONAL CIVIL AVIATION ORGANISATIONS HELD IN PARIS, FRANCE

HEADS OF REGIONAL CIVIL AVIATION ORGANISATIONS

The first-ever formal meeting bringing together the leaders of all regional civil aviation organisations, namely the Arab Civil Aviation Organization (ACAO), the African Civil Aviation Commission (AFCAC), the European Civil Aviation Conference (ECAC), and the Latin American Civil Aviation Commission (LACAC), was held on 7 February 2023 in Paris.

The main objectives of this meeting were to strengthen the relationship and cooperation among the sister civil aviation organisations and to agree on actions that support a safe, secure, and sustainable development of air transport in their respective regions and around the world, consistent with ICAO's strategic objectives.

The Presidents and Directors of each organisation gathered to share views and lessons learned about the main outcomes of the 41st session of the ICAO Assembly and exchange information on their regions' ambitions for the ICAO Assembly in 2025. They also reiterated their commitment to the ratification of the two 2016 Protocols amending the Chicago Convention.

It was acknowledged that strong partnership and collaboration are critical to ensuring the long-term sustainability of the aviation industry. By working together and sharing information and good practices, regional organisations can develop and implement effective strategies to support the recovery of air travel, so as to ensure the growth of the aviation industry for the benefit of the economies and citizens in each region. A series of joint activities, such as cooperation and coordination for ICAO Assemblies, Safety, Security, capacity building in common areas of civil aviation and exchange of best practices on air transport, was agreed for 2023 and 2024.

In a statement, the ECAC President, Mr Alessio Quaranta, Director General of Civil Aviation of Italy, said: *"I am honoured to welcome my colleagues from ACAO, AFCAC, and LACAC to this important meeting in Paris. Our regional organisations share the same goals and objectives in air transport, and it is crucial that we work together to achieve them.*

The meeting provided an excellent opportunity for us to exchange ideas, learn from each other, and identify areas for cooperation to support the industry in fully recovering and building resilience against future disruption. Our shared commitment to cooperation and collaboration will be a critical factor in ensuring the long-term success of aviation."

IN THE NEWS

AIRLINK to restart flights between South Africa and Madagascar after ban lifted

Airlink, Southern Africa's premier airline, will restart scheduled services between South Africa and Madagascar from 30 January 2023 after they were suspended for almost three years. The resumption of flights linking Johannesburg with Antananarivo follows the lifting of Madagascar's COVID-19 travel restrictions and its subsequent ban on air services to and from South Africa.

"Airlink, as the designated South African carrier to Madagascar, welcomes the Madagascar government's lifting of the prohibition which lets us re-establish these air services that are vitally important economic, trade and tourism connections between the two countries. We are looking forward to re-connecting South Africa with Madagascar and resuming our role in support of the recovery of ties between the two markets," said Airlink CEO and Managing Director, Rodger Foster.

South Africa is an important source market and supply-chain link for Madagascar's business and leisure tourism sector. Johannesburg's O.R. Tambo International Airport is well positioned for Madagascar-based businesses and travellers to access destinations within Southern Africa and in conjunction with Airlink's airline partners, destinations in the Americas, UK and Europe.

Airlink will operate its modern and reliable flagship Embraer E-Jet airliners on the Johannesburg-Antananarivo route. The Johannesburg-Antananarivo service will recommence on 30 January 2023 with a single weekly flight on Mondays, increasing to three flights weekly from 14 February 2023 with the intention of re-instating daily services as demand increases.

Emirates Set to Invest high Speed Broadband in its 50 new A350 Aircraft

Emirates, one of the two flag carries of the United Arab Emirates will offer passengers another opportunity to "fly better" with new high speed, inflight broadband powered by Inmarsat's GX Aviation, onboard 50 new Airbus A350 aircraft. The service is scheduled to enter service next year in 2024.

The new agreement will significantly improve the passenger experience with enhanced connectivity and greater global coverage, even on flights over the Arctic.
The Airbus A350s will be the first Emirates aircraft to take advantage of Inmarsat's Global Xpress (GX) satellite network, which powers the world's first and only globally available broadband network, ensuring passengers can enjoy uninterrupted global connectivity, no matter their destination, including the North Pole.

The advanced high-speed capabilities of the broadband will enable Emirates passengers to stay connected with family and friends, browse the internet, and enjoy social media, all from the comfort of their seat.
The GX network that will power the Emirates inflight broadband currently consists of five Ka-band satellites and will be further enhanced with the addition of seven more satellite payloads as part of Inmarsat's fully funded technology roadmap.
This includes two Inmarsat-6s, the most sophisticated commercial communications satellites ever built, both of which are scheduled to enter service in 2023.

These will be followed by three additional satellites in geostationary orbit – adding speed, capacity, and resilience – and two in highly elliptical orbit, to enable the world's only commercial mobile broadband service for aircraft flying in higher elevations and across the Arctic, such as routes between the Middle East and North America.
Source: Eddie Saunders for Airlinergs.com

Cairo to Host 3rd Edition of Egypt Defence Expo in December

The biennial Expo will showcase the latest military technology, equipment and systems across land, sea and air, with over 35,000 military and defence industry visitors expected to attend on 4-7 December 2023.

Set to take place under the patronage of under the patronage of H.E President Abdel Fattah El Sisi, President of The Arab Republic of Egypt and the Supreme Commander of The Egyptian Armed Forces, Egypt Defence Expo (EDEX) will once again play host to more than 400 international exhibitors to showcase the latest military technologies. In addition, VIP delegations from over 60 countries are expected to attend alongside 35,000 other military and industry visitors.

The third edition of EDEX will be organized by Arabian World Events, with the full support of the Egyptian Ministry of Defence and the Ministry of Military Production.

CEO of Arabian World Events, Thomas Gaunt stated, "We are proud to be working alongside the Ministry of Defence and Ministry of Military Production to put on another world-class event. EDEX has become a key hub for the defence industry and is now one of the most important defence exhibitions in the region. We are the only large-scale defence expo that covers the Middle East and Africa, with attending delegations from both regions."
Gaunt added: "There is a strong demand from companies to participate in the third edition of the expo and we fully expect the event to continue with its impressive growth."

Several international manufacturers of military equipment have already confirmed their participation in the exhibition including L3 Harris, General Dynamics, Leonardo, Naval Group, Hanwha, HENSOLDT, Fincantieri, Korea Aerospace Industries, Diehl Defence, ThyssenKrupp, MBDA, Sig Sauer and John Cockerill. With 21 countries already represented on the exhibition floor, there are expected to be over 25 international pavilions which companies can join at the event on 4-7 December 2023.

Ethiopian and MailAmericas launch Joint e-Commerce Logistics Services

Ethiopian Airlines Group (ET) has partnered with MailAmericas (MA), a private postal operator and gold member of the consultive committee for the Universal Postal Union, to develop competitive cross border ecommerce services within Africa and the Middle East using Addis Ababa as a hub.

According to this partnership, Ethiopian Airlines will offer air transport service for carrying goods across its wide network while MailAmericas will provide its market expertise and the know how it gained in Latin America and Africa, where it has networks in over 40 countries.

As part of the partnership, Ethiopian Airlines will gain access to all bilateral agreements and private networks of MailAmericas across the regions, enabling it to offer competitive services to customers in Africa, Latin America, Europe, Middle East, and other parts of the world.

The e-commerce hub will also be equipped with an Automated Sortation System and Electronic Transport Vehicles (ETV) to ensure the smooth handling of shipments ranging from small parcels to boxes, skids, and built-up units (BUPs).

As a major global cargo network operator with a modern warehouse accommodating one million tons per annum, Ethiopian Cargo & Logistics Services has recorded an annual cargo uplift of about 770,000 tons in the 2020/2021 fiscal year. It serves more than 130 international destinations including 66 dedicated cargo destinations in Africa, Middle East, Asia, Europe and the Americas with belly hold capacity and 14 dedicated freighters. Ethiopian Cargo & Logistics Services also uses the latest technologies for data, information and market intelligence with 100% e-AWB from its main hub in Addis Ababa.

Ghana Airlines Ltd Plans Massive Launch

Ghanaian Government is planning to partner with Ashanti Airlines, a privately registered Ghanaian airline to operate a national commercial air carrier known as Ghana Airlines Ltd.

The formal launch of the new national commercial Airline is expected to be effected in the third quarter of 2023 with flights on the domestic routes, then later to Regional and International routes, including flights to Heathrow Airport, London (UK), JFK Airport in New York (USA) and beyond.

Ghana has been without a flag carrier for over ten years. This role was previously served by Ghana Airways, which operated from 1958 to 2004. Ghana International Airlines then took over as the national carrier from 2005 to 2010.

The Airline has obtained its Air Carrier License (ACL) and is in the final stages of obtaining the Air Operator Certificate (AOC).

The new Ghanaian flag carrier will be based out of Accra's Kotoka International Airport (ACC). Boeing 787-9 Dreamliners will unlock long-haul international routes for the carrier. The Ghanaian government reportedly placed an order for three of these modern wide bodies in 2019 at the Dubai Air Show.

Tensions High As Rwanda Shoots at Congolese Fighter Jet

Tensions are currently high between the government of the Republic of Rwanda and that of the Democratic Republic of Congo (DRC) after an alleged Shooting of a Congolese fighter Jet Sukhoi- 25 by Rwandan Defence Forces (RDF) on the evening of Tuesday 24 January 2023 owing to an alleged violation of Rwanda's Air space. The Congolese Government responded to the shooting at of the fighter jet as an act of War.

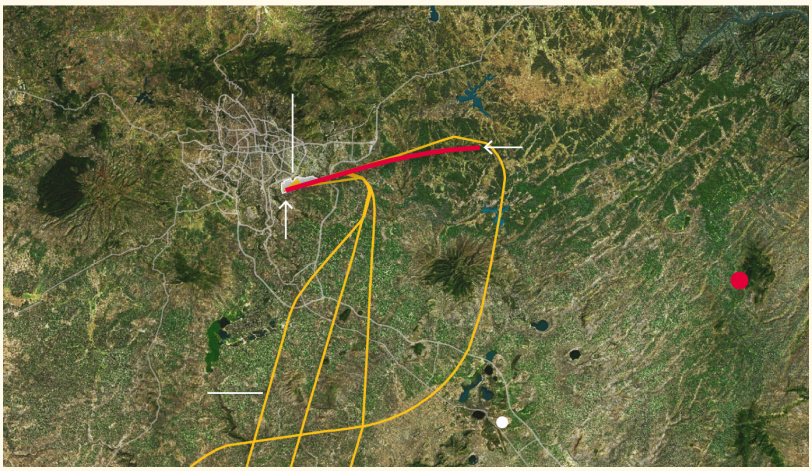
A video widely shared on Congolese social media showed a projectile shooting towards an airborne military plane, before exploding in the air near the plane, which continued to fly.

"The RDF (Rwanda Defense Forces) fired at the fighter jet from DRC that violated Rwandan airspace in Rubavu — same area as previous violations," Rwandan government spokesperson Yolande Makolo said in a statement. Makolo said the jet violated its airspace at 5:03 p.m. local time, prompting the government to take defensive measures against it. "Rwanda asks the DRC to stop this aggression," she said.

The incident is the latest dispute between the two countries whose relationship has been strained by a rebel insurgency. It described Rwanda's move as a "deliberate act of aggression that amounts to an act of war" aimed at undermining a peace agreement to end an offensive by the M23 rebel group.

Congo, United Nations experts and Western powers have accused Rwanda of backing the M23 in eastern Congo, which seized several towns and villages in renewed fighting last year. Rwanda denied any involvement.

Crash ET302 Final Report Missing Details



The Ethiopian Airplane Accident Investigation Bureau (EAIB) is the investigation authority in Ethiopia responsible for the investigation of civil Airplane accidents and serious incidents in Ethiopia.

On March 10, 2019, at about 05:44 UTC2, Ethiopian Airlines flight ET-302, a Boeing 737-MAX8, crashed shortly after takeoff from Addis Ababa Bole International Airport (HAAB). There were 149 passengers and 8 crews on board. All were fatally injured, and the Airplane was destroyed.

Following the publication of the final report, both the US National Transportation Safety Board (NTSB) and French Bureau d'Enquêtes et d'Analyses (BEA) took the highly unusual step of publishing separate comments on the report. The report does not address any issues related to human factors or crew actions.

NTSB and BEA release their comments

Both the NTSB and BEA agree with the EAIB regarding MCAS' contribution to the accident and both agencies' comments relate to the human factors and crew actions that are not discussed in the EAIB report.

The NTSB and BEA's comments both focus on the additional contribution the crew's actions had on the accident, areas on which the EAIB spends little to no time in the final report. The NTSB comments propose two additional factors be added to the probable cause:

- The operator's failure to ensure that its flight crews were prepared to properly respond to uncommanded stabilizer trim movement in the manner outlined in Boeing's flight crew operating manual (FCOM) bulletin and the FAA's emergency airworthiness directive (AD) (both issued 4 months before the accident) and
- The airplane's impact with a foreign object, which damaged the AOA sensor and caused the erroneous AOA

Regarding the accident's probable cause, the French agency says it "believes that the crew's inadequate actions and the insufficient Cockpit Resource Management (CRM) played a role in the chain of events that led to the accident, in particular during the first phase of the flight, before the first MCAS activation."

OPEN SKIES: Why Mombasa forms a critical base for implementation

By Evans Kimani
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The open skies agreement is a policy that seeks to minimize government control of passenger and cargo transportation over a wide region. The policy seeks to increase international travel through open airspace, enable airlines to be more competitive with their prices due to the freedom of operators to travel within destinations of high demand, and to further cover areas that would be considered underserved. Furthermore, the open skies agreement seeks to establish efficient policies in the aviation sector that will see the industry more sustainable and accessible to the general public.

The African aviation continent has been the subject of this matter for a long period. From the Yamoussokro decision of 1999 which seeks to liberalize the air transport market to the Single African Air Transport Market (SAATM) of 2018 which has seen the consistent opening up of the transport of the continent. The continent's progress in opening up the skies has however been slow, as the major cities such as Dakar, Nairobi, Kigali, and Johannesburg are seen to be benefitting more as compared to the other growing cities in the continent. While AFCAC's new Secretary General Adefunke Adeyemi highlighted in a recent dialogue in AFRAA that it was essential, to begin with, the well-established markets for the implementation of SAATM, various cities in the continent have shown their various potential for passenger and cargo connections for the continent and among them is Kenya's coastal city, Mombasa.

Mombasa; The Rising Hub?

Mombasa is Kenya's second-largest city with a population consisting of 1.2 million people. The city is among the oldest in Africa, with its founding dating back to the

10th century, and is home to one of the deepest harbors in the world, the Kilindini Harbour. The city is popular for holidaymakers due to its vast beach at the Indian Ocean and the variety of resorts and attractions it offers, including Fort Jesus which is categorized as a UNESCO heritage site. While the city boasts of its tourist attractions, Mombasa is home to the Moi International Airport (MBA/HKMO). The airport was originally built during World War 2, the airport was elevated to international Airport status in 1979 and currently operates with 2 runways, with a length of 3,350m and 1,363m, enabling it to handle a wide variety of aircraft from widebodies to general aviation aircraft. In 2018 the airport handled 1.5 million passengers, which registered an improvement from 2017 and 2016 numbers of 1.34 million and 1.325 million respectively. The airport currently has 9 aircraft slots, 3 fuel firms as well as 4 ground handling services.

Mombasa has over the years, presented itself as a key city for enabling connections globally. With the recent launch of Kenya Airways' flights to Dubai from the city with its Boeing 737-800 aircraft, the County Governor Abdulswamad Sharrif further showed commitment to the open skies agreements that were being developed, sighting that more operators and routes opened in the city would significantly drive the growth of the coastal town through the increase of jobs in the aviation and tourism sector. Furthermore, this would spur competition for the national carrier and other international carriers.

The airport serves a variety of domestic carriers including Kenya Airways, Safarilink Aviation, African Express, Skywards Express, and Jambojet among others connecting the cities of Nairobi, Kisumu, Eldoret, and Isiolo.
Being a resort city, the city is a host to over 9 international carriers including Ethiopian Airlines (ET), Turkish Airlines (TK), Rwandair (WB), Qatar Airways (QR), Condor (DE), Neos (NO), Uganda Airlines (UR), Smartwings (32) and Eurowings Discover (4Y). These airlines connect the city to a wide number of cities including Addis Ababa, Istanbul, Doha, Kigali, Frankfurt, Milan, and Entebbe among others thus showing the significant connection the city has between tourism and aviation.

Through this, the open skies and SAATM agreements form a crucial element in providing tourism connections to the city that will enable the airport and the environs it serves to grow from the opportunities brought to them by the various passengers and cargo. In addition to the revenue streams, Mombasa can become a hub, through its position of other Indian Ocean Cities, the Middle East, and the Indian region, more airlines within the continent, through the policies created by the governments, can enhance connectivity and generate the market that will enable to stimulate competition which will effectively lower the costs of travelers as well as their operators.

Therefore, while Mombasa continues to create attraction from local and regional carriers, it remains essential that the SAATM policy will be able to promote and improve many of the regions in the continent. The government of Kenya has however reinstated its support of the city's airspace, including various agreements with the Czechia, Chile, Cyprus, Austria, Belize, and Barbados in a bid to boost the tourism and aviation traffic flowing into the country. As this forms a significant step towards increasing Mombasa as a tourist hub, it remains important that the government further deepens its implementation and focus of SAATM together with the African countries to enable steady and robust growth for the aviation industry in Mombasa.

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UCAA Chief to rejuvenate sector and restore public trust

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Uganda's aviation sector has experienced its greatest growth since the Covid-19 pandemic shuttered business prospects in 2020. According to the Uganda Civil Aviation Authority, passenger handling at Uganda's airports has risen from a low of 500,000 in 2020 to pre-pandemic levels of 1,400,000 passengers per year.

So, we asked Civil Aviation Authority Director General Fred Bamwesigye, what prompted this run of business and where things are heading in 2023.In this version, we highlight activities planned for this year, after the new Director General of Uganda Civil Aviation Authority Fred Bamwesigye pledged to restore public confidence in Uganda's aviation industry.

What you need to know

Mr Bamwesigye took charge at UCAA recently, after the Minister for Works and Transport, Gen. Edward Katumba Wamala appointed him as the substantive Director-General of UCAA on September 28 2021.
His appointment letter authored on September 28 indicated that he would take office effective October 1. He will serve a period of three years. During his tenure, Bamwesigye will among other benefits earn a salary and be entitled to annual leave of 36 working days, and have a chauffeured official vehicle and a support car plus a business class air ticket to foreign travels while on official duty.

At the time of his appointment, Bamwesigye was the Acting Director-General and the substantive Deputy Director-General. He performed excellently well coupled with his eloquent and zeal to turn around the airlines is something to reckon with indicated no better choice other than him.

He replaced Dr David Mpango Kakuba, who retired as Director-General in June 2020.
The UCAA board of directors, chaired by retired Chief Justice Steven Kavuma, advertised to fill the then vacant position. Twenty-one people including Bamwesigye applied. Of these, seven were shortlisted and interviewed by the board on May 14, the board thereafter recommended to the works minister three names. These were Bamwesigye, Olive Birungi Lumonya and Tom David Wasswa. The minister selected Bamwesigye. Bamwesigye said that he is "very happy that he got the job," although at a difficult time when the aviation industry, just like tourism and other sectors have been negatively affected by COVID-19.

Civil Aviation Authority Director General Mr Fred Bamwesigye

Achievements

Entebbe International Airport handled 1.9 million passengers in 2019, and less than 500,000 last year due to the COVID-19 outbreak.

Bamwesigye noted that when Entebbe Airport was partially shut down for seven months in 2020, UCAA was collecting about shillings one billion in revenue. Even though the airport resumed commercial passenger flights last October, Bamwesigye says the regulator is collecting about shillings 7 billion per month. Before the advent of COVID-19, UCAA, used to collect revenue in the range of shillings 28 billion and 30 billion per month.

As a result, Bamwesigye says among the key things, he will have to rejuvenate the aviation sector through boosting public confidence and lobbying for increased funding to fast track capital developments such as the upgrade and expansion of Entebbe Airport among others.

He says UCAA will devise strategies and liaise with local and foreign players in aviation, tourism, hospitality among others to restore confidence among travelers that Uganda is safe and secure amidst the COVID-19 disruptions.

"We have to offer something special to boost export cargo, attract more passengers and airlines to pass through Entebbe and other airfields because we are currently handling about 25 percent of the passengers that we used to have before the advent of COVID-19," Bamwesigye says.

He also pledges to ensure the completion of the 1.1 trillion shillings Entebbe International Airport upgrade and expansion project.

The expansion project is driven by the rising number of passengers handled at the airport and also the need to improve customer experience, safety, security, and compliance with regulations. The project entails the construction of a new cargo center and passenger terminal building, rehabilitation works for aprons and runways.

UCAA needs shillings 400 billion annually to maintain and enhance safety and security measures at Entebbe Airport and also facilitate capital developments such as upgrading and maintaining the other 13 aerodromes such as Gulu and Arua.

"I am convinced that we will get more funds because the aviation sector is on its knees," the new UCAA boss says. "In the past, we were able to use locally generated revenue to do capital development projects."

According to the Director General, Uganda's aviation industry is the nucleus of the country's development, and is a pivotal link between Uganda and other countries. It is therefore the vision of this Authority to enhance its regulatory capacity for the safety and security of air transport, while facilitating optimum efficiency with respect to the movement of passengers and goods.

How Aviation is Accelerating Tourism growth and Development in Africa

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Tourism is defined as a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes.

Tourism and Air Transport industry complement each other. Tourism depends on transportation to bring visitors, while the transportation industry depends on tourism to generate demand for its services. Transport is the cause and the effect of the growth of tourism.

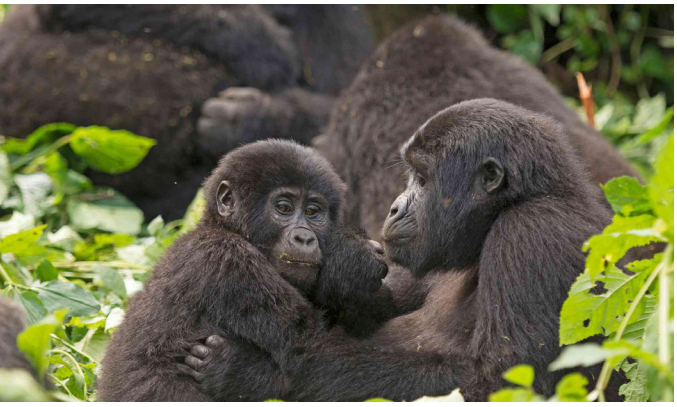
Over the past six decades, tourism has experienced continued expansion and diversification, becoming one of the largest and fastest growing economic sectors in the world. According to Tourism Towards 2030, World Tourism Organization (UNWTO) has estimated an increase of 3.3% a year on an average. This represents some 43 million more international tourist arrivals every year, reaching a total of 1.8 billion arrivals by 2030 from 1.3 billion in 2019. Airlines and airports have played a major role in opening up new destinations. Without airlines, some continents, many countries, regions, and islands would have remained inaccessible and even established destinations would have had far fewer tourists - or in many cases no tourists at all.

Tourism in Africa

Tourism is a powerful vehicle for economic growth and job creation. The World Travel & Tourism Council estimates that 3.8 million jobs (including 2.4 million indirect jobs) could be created by the tourism industry in SubSaharan Africa (SSA) over the next 10 years.

Africa's private sector is increasingly attracting investment from the United States and Europe, with China, India and others also investing heavily in the region. Private capital flows are higher than official development assistance and foreign direct investment is higher than in India. Returns to investment in Africa are among the highest in the world and this has highly attracted Global Companies in the Aviation Sector to invest heavily in Africa.

The UN World Tourism Barometer, as of January 2022, shows a 51% year-over-year increase in international tourist arrivals to Africa. Destinations such as Kenya, Morocco, Tunisia, Cape Verde and Mauritius have thus managed



to remain sought-after destinations. In addition, travel between countries on the continent has become more important. More and more Africans are staying on the continent for their vacations. There is a surge in initiatives across Africa's aviation industry to improve domestic and International air connectivity and increase air traffic within Africa and between Africa and neighbouring regions.

How Air travel is Driving African Tourism growth

There has always been efforts geared towards the liberalization of the Aviation Industry on the African Continent. Air transport remains the preferred form of transport for much of international tourism particularly, for the long haul tourism and tourism to islands. According to a report authored by Ray' Mutinda (Ph.D) of Mt Kenya University School of Hospitality, Travel and Tourism Africa has witnessed a sustained growth in her air transportation sector, rising by 6.6 % over the last decade, making the continent the second fastest growing region globally after Asia.

Traffic to, from, and within Africa is projected to grow by about 6 percent per year for the next 20 years (Boeing's long term forecast 2014-2033) Embraer, The Brazilian manufacturer which recently partnered with Boeing sees Africa as a market with a "huge potential" according to Anuradha Deenapanray reports. With more than 200 aircraft flying in Africa, the Brazilian manufacturer is the leader in the up-to-150 seats segment, with 29% share of deliveries. This presents a huge opportunity to maximize tourism potential across the African Continent. IATA supported the African Union's efforts with SAATM as the only feasible solution for meaningful industry growth.

The VISA Policy Regime in the Aviation Tourism nexus

The facilitation of travel through visa policy regimes is a key prerequisite for international travel for whatever reason, tourism included. As countries pursue these objectives, visa policies also produce an impediment to travel and tourism.
Africa as a region requires a visa prior to departure from 62% of the world's population. Africa has the highest percentage of countries whose visitors are able to obtain a visa on arrival (29% in 2012). In Central Africa for instance, the use of traditional visas is highest of all Africa's sub-regions (required for 92% of the world's population). East Africa, has the lowest requirement of the traditional visa in the world- only 33% of the world's population are required to have visas to visit the sub-region. In addition, the sub-region grants visas on arrival to 62% of the world's population making it the second most open sub-region in the world after South East Asia.

The growth of tourism and indirectly air transport is dependent on other government policies like free travel and visa liberalization. The African Union's goal of a completely visa-free continent by 2020 should significantly boost regional traffic. Last year, the African Union launched the African Passport program, but this document is currently available only to top diplomats. Seychelles is currently the only country to offer visa-free access to all other African nationals. Rwanda implemented a visa-on-arrival system in 2013 that enables African nationals to stay in the country for up to 90 days and since then has seen the number of visitors increase by more than 100%

Hindrances towards development of Intra-Africa Tourism
The African VISA regime is somewhat restrictive towards African Travelers in comparison with Outsiders particularly Europeans and Americans. Facts and figures derived from a report published by Ray' Mutinda (Ph.D) and sourced from Mthuli (2014) depicts the following;

- Africans traveling within the region are generally more restricted compared to outsiders, especially Europeans and North Americans.
- On average, African citizens require visas to visit 60% of countries in the region - ranging from a high of 84% for Somalia to a low of 41% for The Gambia
- Only five African countries (Seychelles, Mozambique, Rwanda, Comoros and Madagascar) offer visa-free access or visas on arrival to citizens of all African countries.
- DRC, Equatorial Guinea, São Tomé, and Sudan require citizens from every single African country to apply for a visa.
- On average, African citizens require visas to visit 60% of African countries - ranging from a high of 84 per cent for Somalia to a low of 41% for The Gambia.
- Central Africa has highest use of traditional visas out of all Africa's sub-regions.
- East Africa is the second most open sub-region in the world, with high numbers of visas on arrival. While on the hand, East Africans require the most visas to travel within Africa.
- Countries in the Economic Community of West African States (ECOWAS) have the most access, requiring a visa to visit for under 50% of the African countries due to the visa-free movement within the ECOWAS sub-region, implemented under the 1979 Protocol of Free Movement.
- Rwanda has the continent's most liberal migration policy. January 1, 2013, allowed entry-visas-on arrival for all African citizens arriving at its borders. offers online visa requests (Result: a 24% rise in tourism from African countries since the beginning of 2014; a 50% increase in trade with neighbouring countries in 2012; and a 73% increase in trade with the Democratic Republic of Congo)

All these VISA restrictive measures have to a great extent hindered African Tourism

Liberalization of The African Aviation Sector a key driver to Tourism growth

It is without a doubt that successful implementation of the Single African Air Transport Market (SAATM) will have a positive impact beyond tourism. In the 12 countries IATA's report examined in 2014, open skies could generate an estimated $1.3 billion of additional spending. Tourism has the potential to stimulate growth in a wide range of economic sectors – from manufacturing to construction, to more advanced industries such as telecommunications, finance and professional services. Indirect socioeconomic benefits extend to sub-sectors such as taxi and transportation services as well as food sales, both of which provide jobs for thousands of people on the continent.

The long-running global push to open African skies benefited from the signing of the Single African Air Transport Market (SAATM) by 34 countries which countries represent over 80% of the existing aviation market in Africa. Making a commitment to shift toward a continental approach in liberalizing the market, which would increase connectivity and reduce the unit costs for both airlines and passengers.

"The focus of the African union commission is on the liberalization of the air transport industry in Africa, being one of the flagship projects identified by African leaders in the AU agenda 2063 as an impetus to enhance the connectivity and integration of the continent and to enable the effective operationalization of the African free trade area — another flagship project of the continental agenda.

This requires developing a seamless air navigational and ground based infrastructure architecture as well as implementation of international standards, particularly ensuring compliance with safety and security standards. " H.E. Dr. Amani Abou Zeid, African Union Commissioner for Infrastructure, Energy, Tourism and ICT. It is therefore fundamental to note that Tourism will be driven by a vibrant and liberalized Aviation Sector.

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END OF AN ERA

Queen of the Skies Boeing 747 Ends Production

The Boeing 747 was a large, long-range wide-body airliner designed and manufactured by Boeing Commercial Airplanes in the United States between 1968 and 2023.

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The 747 was conceived while air travel was increasing in the 1960s. The era of commercial jet transportation, led by the enormous popularity of the Boeing 707 and Douglas DC-8, had revolutionized long-distance travel. In the early 1960s, even before it lost the CX-HLS contract, Boeing was asked by Juan Trippe, president of Pan Am, one of their most important airline customers, to build a passenger aircraft jet two and a half times size of the 707. During this time, airport congestion, worsened by increasing numbers of passengers carried on relatively small aircraft, became a problem that Trippe thought could be addressed by a larger new aircraft.

In 1965, Joe Sutter was transferred from Boeing's 737 development team to manage the design studies for the new airliner, already assigned the model number 747. Sutter began a design study with Pan Am and other airlines to better understand their requirements. At the time, many thought that long-range subsonic airliners would eventually be superseded by supersonic transport aircraft. Boeing responded by designing the 747 so it could be adapted easily to carry freight and remain in production even if sales of the passenger version declined. In April 1966, Pan Am ordered 25 Boeing 747-100 aircraft for US$525 million (equivalent to $3.3 billion in 2020 dollars).

During the ceremonial 747 contract- signing banquet in Seattle on Boeing's 50th Anniversary, Juan Trippe predicted that the 747 would be "a great weapon for peace, competing with intercontinental missiles for mankind's destiny" As launch customer and because of its early involvement before placing a formal order, Pan Am was able to influence the design and development of the 747 to an extent unmatched by a single airline before or since.

One of the principal technologies that enabled an aircraft as large as the 747 to be drawn up was the high-bypass turbofan engine. This engine technology was thought to be capable of delivering double the power of the earlier turbojets while consuming one-third less fuel. General Electric had pioneered the concept but was committed to developing the engine for the C-5 Galaxy and did not enter the commercial market until later. Pratt & Whitney was also working on the same principle and, by late 1966, Boeing, Pan Am and Pratt & Whitney agreed to develop a new engine, designated the JT9D to power the 747.

The project was designed with a new methodology called fault tree analysis, which allowed the effects of a failure of a single part to be studied to determine its impact on other systems. To address concerns about safety and flyability, the 747's design included structural redundancy, redundant hydraulic systems, quadruple main landing gear and dual control surfaces. In addition, some of the most advanced high-lift devices used in the industry were included in the new design, to allow it to operate from existing airports. These included Krueger flaps running almost the entire length of the wing's leading edge, as well as complex three-part slotted flaps along the trailing edge of the wing.

The wing's complex three-part flaps increase wing area by 21% and lift by 90% when fully deployed compared to their non-deployed configuration. Boeing agreed to deliver the first 747 to Pan Am by the end of 1969. The delivery date left 28 months to design the aircraft, which was two-thirds of the normal time. The schedule was so fast-paced that the people who worked on it were given the nickname 'The Incredibles' Developing the aircraft was such a technical and financial challenge that management was said to have 'bet the company' when it started the project. As Boeing did not have a plant large enough to assemble the giant airliner, they chose to build a new plant.

The company considered locations in about 50 cities and eventually decided to build the new plant some 30 miles (50 km) north of Seattle on a site adjoining a military base at Paine Field near Everett, Washington. Boeing bought the 780-acre (320 ha) site in June 1966. Developing the 747 had been a major challenge and building its assembly plant was also a huge undertaking. Boeing President William M. Allen asked Malcolm T. Stamper, then head of the company's turbine division, to oversee construction of the Everett factory and to start production of the 747. To level the site, more than four million cubic yards (three million cubic meters) of earth had to be moved. Time was so short that the 747's full-scale mock-up was built before the factory roof above it was completed. The plant is the largest building by volume ever built and has been substantially expanded several times to permit construction of other models of Boeing wide-body commercial jets.

Before the first 747 was fully assembled, testing began on many components and systems. One important test involved the evacuation of 560 volunteers from a cabin mock-up via the aircraft's emergency chutes. The first full-scale evacuation took two and a half minutes instead of the maximum of 90 seconds mandated by the Federal Aviation Administration (FAA), whilst several volunteers were injured.

Subsequent test evacuations achieved the 90-second goal but caused more injuries. Most problematic was evacuation from the aircraft's upper deck; instead of using a conventional slide, volunteer passengers escaped by using a harness attached to a reel. Tests also involved taxiing such a large aircraft. Boeing built an unusual training device known as 'Waddell's Wagon' (named for a 747-test pilot, Jack Waddell) that consisted of a mock-up cockpit mounted on the roof of a truck. While the first 747s were still being built, the device allowed pilots to practice taxi manoeuvrers from a high upper-deck position.

In 1968, the programme cost was US$1 billion (equivalent to $5.8 billion in 2020 dollars). On 30 September 1968, the first 747 was rolled out of the Everett assembly building before the world' media and representatives of the 26 airlines that had ordered the airliner. Over the following months, preparations were made for the first flight, which took place on 9 February 1969, with test pilots Jack Waddell and Brien Wygle at the controls and Jess Wallick at the flight engineer's station. Despite a minor problem with one of the flaps, the flight confirmed that the 747 handled extremely well. The 747 was found to be largely immune to 'Dutch roll', a phenomenon that had been a major hazard to the early swept-wing jets.

During later stages of the flight test programme, flutter testing showed that the wings suffered oscillation under certain conditions. This difficulty was partly solved by reducing the stiffness of some wing components.

However, a particularly severe high-speed flutter problem was solved only by inserting depleted uranium counterweights as ballast in the outboard engine nacelles of the early 747s. This measure caused anxiety when these aircraft crashed, for example El Al Flight 1862 at Amsterdam in 1992 with 622 pounds (282 kg) of uranium in the tailplane (horizontal stabiliser).

The flight test programme was hampered by problems with the 747's JT9D engines. Difficulties included engine stalls caused by rapid throttle movements and distortion of the turbine casings after a short period of service. These problems delayed 747 deliveries for several months; up to 20 aircraft at the Everett plant were stranded while awaiting engine installation. The programme was further delayed when one of the five test aircraft suffered serious damage during a landing attempt at Renton Municipal Airport, the site of Boeing's Renton factory. The incident happened on 13 December 1969, when a test aircraft was flown to Renton to have test equipment removed and a cabin installed. Pilot Ralph C. Cokely undershot the airport's short runway and the 747's right, outer landing gear was torn off and two engine nacelles were

damaged.

However, these difficulties did not prevent Boeing from taking a test aircraft to the 28th Paris Air Show in mid-1969, where it was displayed to the public for the first time. The 747 received its FAA airworthiness certificate in December 1969, clearing it for introduction into service. The huge cost of developing the 747 and building the Everett factory meant that Boeing had to borrow heavily from a banking syndicate. During the final months before delivery of the first aircraft, the company had to repeatedly request additional funding to complete the project. Had this been refused, Boeing's survival would have been threatened.

The firm's debt exceeded $2 billion, with the $1.2 billion owed to the banks setting a record for all companies. Allen later said, "It was really too large a project for us." Ultimately, the gamble succeeded and Boeing held a monopoly in very large passenger aircraft production for many years. On 15 January 1970, First Lady of the United States Pat Nixon christened Pan Am's first 747 at Dulles International Airport (later Washington Dulles International Airport) in the presence of Pan Am chairman Najeeb Halaby. Instead of champagne, red, white and blue water was sprayed on the aircraft. The 747 entered service on 22 January 1970, on Pan Am's New York–London route; the flight had been planned for the evening of 21 January, but engine overheating made the original aircraft unusable. Finding a substitute delayed the flight by more than six hours to the following day when Clipper Victor was used.

The 747 enjoyed a fairly smooth introduction into service, overcoming concerns that some airports would not be able to accommodate an aircraft that large. Although technical problems occurred, they were relatively minor and quickly solved. After the aircraft's introduction with Pan Am, other airlines that had purchased the 747 to stay competitive began to place their own 747s into service. Boeing estimated that half of the early 747 sales were to airlines desiring the aircraft's long range rather than its payload capacity. While the 747 had the lowest potential operating cost per seat, this could only be achieved when the aircraft was fully loaded; costs per seat increased rapidly as occupancy declined. A moderately loaded 747, one with only 70 percent of its seats occupied, used more than 95 percent of the fuel needed by a fully occupied 747. Nonetheless, many flag-carriers purchased the 747 due to its prestige 'even if it made no sense economically' to operate.

During the 1970s and 1980s, more than 30 regularly scheduled 747s could often be seen at John F. Kennedy International Airport. The recession of 1969–1970, despite having been characterised as relatively mild, greatly affected Boeing. For the year and a half after September 1970, Boeing sold only two 747s in the world, both to Irish flag carrier Aer Lingus. No 747s were sold to any American carrier for almost three years.

When economic problems in the US and other countries after the 1973 oil crisis led to reduced passenger traffic, several airlines found they did not have enough passengers to fly the 747 economically and they replaced them with the smaller and recently introduced McDonnell Douglas DC- 10 and Lockheed L-1011 TriStar trijet wide bodies (and later the 767 and A300 / A310 twinjets).

Having tried replacing coach seats on its 747s with piano bars in an attempt to attract more customers, American Airlines eventually relegated its 747s to cargo service and in 1983 exchanged them with Pan Am for smaller aircraft; Delta Air Lines also removed its 747s from service after several years. Later, Delta acquired 747s again in 2008 as part of its merger with Northwest Airlines, although it retired the Boeing 747-400 fleet in December 2017.

International flights bypassing traditional hub airports and landing at smaller cities became more common throughout the 1980s, thus eroding the 747's original market. Many international carriers continued to use the 747 on Pacific routes. In Japan, 747s on domestic routes were configured to carry nearly the maximum passenger capacity. The 747 line was further developed with the launch of the 747-300 on 11 June 1980, followed by interest from Swissair a month later and the go-ahead for the project. The 300 series resulted from Boeing studies to increase the seating capacity of the 747, during which modifications such as fuselage plugs and extending the upper deck over the entire length of the fuselage were rejected. The first 747-300, completed in 1983, included a stretched upper deck, increased cruise speed and increased seating capacity.

Variants

The -300 variant was previously designated 747SUD for stretched upper deck, then 747-200 SUD, followed by 747EUD, before the 747-300 designation was used. Passenger, short range and combination freighter-passenger versions of the 300 series were produced. In 1985, development of the longer range 747-400 began. The variant had a new glass cockpit, which allowed for a cockpit crew of two instead of three, new engines, lighter construction materials and a redesigned interior. Development costs soared and production delays occurred as new technologies were incorporated at the request of airlines.

Insufficient workforce experience and reliance on overtime contributed to early production problems on the 747-400. The -400 entered service in 1989. In 1991, a record-breaking 1,087 passengers were flown in a 747 during a covert operation to airlift Ethiopian Jews to Israel. Generally, the 747-400 held between 416 and 524 passengers. The 747 remained the heaviest commercial aircraft in regular service until the debut of the Antonov An-124 Ruslan in 1982; variants of the 747-400 surpassed the An- 124's weight in 2000.

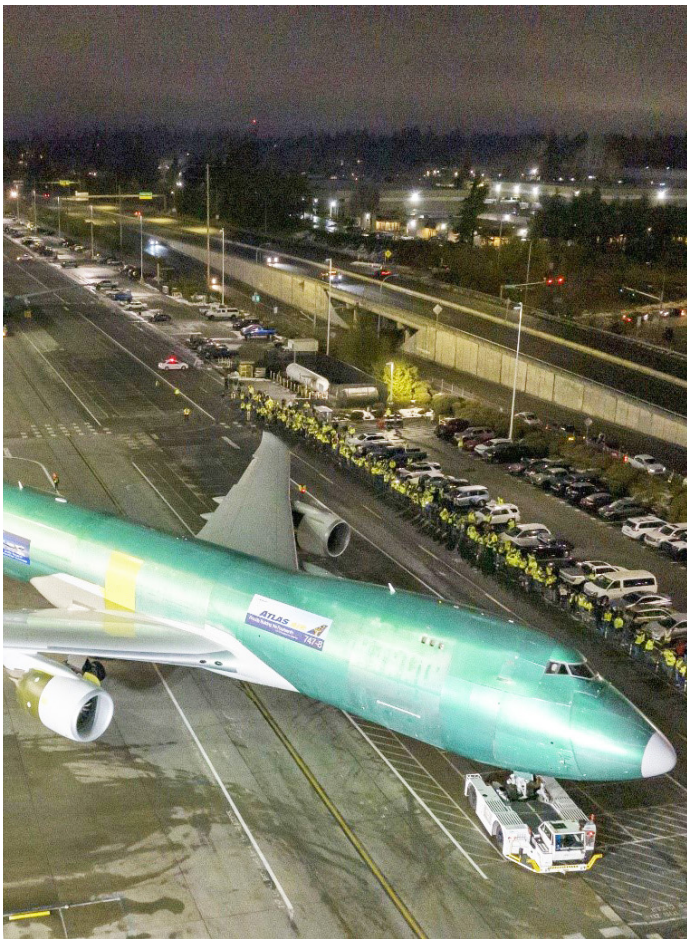
Since the arrival of the 747-400, several stretching schemes for the 747 have been proposed. Boeing announced the larger 747-500X and -600X preliminary designs in 1996. The new variants would have cost more than US$5 billion to develop and interest was not sufficient to launch the programme. After several variants were proposed but later abandoned, some industry observers became sceptical of new aircraft proposals from Boeing. However, in early 2004, Boeing announced tentative plans for the 747 advanced that were eventually adopted. Similar in nature to the 747-X, the stretched 747 Advanced used technology from the 787 to modernise the design and its systems. The 747 remained the largest passenger airliner in service until the Airbus A380 began airline service in 2007.

On 14 November 2005, Boeing announced it was launching the 747 Advanced as the Boeing 747-8. The final 747-400s were completed in 2009. As of 2011, most orders of the 747-8 have been for the freighter variant. On 8 February 2010, the 747-8 Freighter made its maiden flight. The first delivery of the 747-8 went to Cargolux in 2011, whilst the first 747-8 Intercontinental passenger variant was delivered to Lufthansa on 5 May 2012. The 1,500th Boeing 747 was delivered in June 2014 to Lufthansa. In January 2016, Boeing stated it was reducing 747-8 production to six a year beginning in September 2016, incurring a $569 million post-tax charge against its fourth-quarter 2015 profits.

At the end of 2015, the company had 20 orders outstanding. On 29 January 2016, Boeing announced that it had begun the preliminary work on the modifications to a commercial 747-8 for the next Air Force One presidential aircraft. On 12 July 2016, Boeing announced that it had finalized an order from Volga-Dnepr Group for 20 747- 8 freighters, valued at $7.58 billion at list prices. Four aircraft were delivered beginning in 2012. Volga-Dnepr Group is the parent of three major Russian air-freight carriers – Volga-Dnepr Airlines, AirBridgeCargo Airlines and Atran Airlines. The new 747-8 freighters will replace AirBridgeCargo's current 747-400 aircraft and expand the airline's fleet and will be acquired through a mix of direct purchases and leasing over the next six years, Boeing said.

End of production

End of production On 27 July 2016, in its quarterly report



to the Securities and Exchange Commission, Boeing discussed the potential termination of 747 production due to insufficient demand and market for the aircraft. With a firm order backlog of 21 aircraft and a production rate of six per year, programme accounting has been reduced to 1,555 aircraft and the 747 line could be closed in the third quarter of 2019. In October 2016, UPS Airlines ordered 14 -8Fs to add capacity, along with 14 options, which it took in February 2018 to increase the total to 28 -8Fs on order. The backlog then stood at 25 aircraft, though several of these are orders from airlines that no longer intend to take delivery. On 2 July 2020, it was reported that Boeing planned to end 747 production in 2022 upon delivery of the remaining jets on order to UPS and the Volga- Dnepr Group due to low demand.

On 29 July 2020, Boeing confirmed that the final 747 would be delivered in 2022 as a result of 'current market dynamics and outlook' stemming from the COVID-19 pandemic, according to CEO David Calhoun. The final aircraft, a 747-8F freighter for Atlas Air, rolled off the production line on 6 December 2022, for a 2023 delivery. Finally, on Tuesday Jan 31st 2023, the last-ever Boeing 747 was delivered to its new owner, US air cargo operator Atlas Air, at Boeing's plant in Everett, Washington bringing an end to an extraordinary 54 years of production.

Source: Multiple Sources

Automation: the future of the aviation industry

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Automation is defined as the utilization of different control systems and technologies that reduces the requirement of human interference

The introduction of automation on board airplanes must be acknowledged as one of the driving forces behind the decline in the accident rate down to the current level. Automation in the aviation world plays a pivotal role nowadays. Its presence on board airplanes is pervasive and highly useful in improving the pilots' performance and enhancing safety.

In recent years, the aviation industry has gone through a lot of turning points to enhance the services it provides by implementing several advanced technologies. For example, the air traffic control systems are going through numerous automation works today, which can detect the weather conditions and reduce the chances of air collisions and crashes. With the introduction of new technologies in the market, the usage of computers has become inevitable as it provides great performance in delivering specific tasks.

It is important nowadays to consider automation in all the airlines to perform highly complex and dynamic tasks with ease. As automation has become an important aspect in the aviation industry, airline service providers are focusing on different onboard technologies to automate their processes.
The most common automation system in the aviation industry is autopilots. Autopilot systems make it a lot easier for the pilots to fly the plane easily and smoothly as it controls the flight automatically with minimal human intervention.

How Automation has reduced on accidents

During the fifties and sixties, the main causes of aviation accidents were believed to be related to the human factor. The immediate cause of an accident was often to be found in "active failures", e.g. loss of control of the aircraft in which pilots failed to keep the aircraft under control, reaching over-speed limits, stalling, excessive bank angles, etc.

In these cases, the root cause was a flawed performance that eventually caused the loss of control. Factors related to human performance, e.g. the impact of fatigue, attention, high workload sustainability, stress mismanagement, etc. were consequently addressed. Technological solutions were sought to help pilots manage these factors. Innovation at that time eventually led to the introduction of the auto-pilot, auto-throttle, flight director, etc. After the mid-fifties, as a result of these innovations, the accident curve dropped sharply.

Evolution of automation

We may identify three main generations of onboard automation systems namely; mechanical, electrical and electronic.
Early signs of automation were introduced on board aircrafts during the decade from 1920 to 1930, in the form of an autopilot based on a mechanical engineering concept that was designed to keep the

aircraft flying straight: a very basic input to control the flight at a "skill" level.

The second generation of automation included electric devices replacing the old mechanisms. Electric gyroscopes instead of pneumatic ones, new instruments such as the VOR (Very High Frequency Omni-directional Range) to follow a track based on ground aids, the ILS (Instrumental Landing System) to follow a horizontal and a vertical path till the runway threshold, and so forth.
The third generation of innovation involved electronics, and was mainly driven by the availability of cheap, accessible, reliable and usable technology that invaded the market, bringing the personal computer into almost every home. The electronic revolution occurring from the mid-80s also helped to shape the new generation of pilots, who were accustomed to dealing with the pervasive presence of technology since the early years of their life.

Electronics significantly helped to diminish the clutter of instruments on board and allowed for replacing old indicators - gauges in the form of round-dial, black and white mechanical indicators for every monitored parameter - with integrated colored displays for example; Cathode Ray Tube (CRT) and Liquid Crystal Display (LCD) capable of providing a synthetic and analytic view of multiple parameters in a limited area of the cockpit.

Reasons for Automation

Two main reasons led to the decision to adopt onboard automation; the elimination of human error and economic aspects. The first element stems from the general view whereby human performance is regarded as a threat to safety. The second element is easier to tackle since we can even quantify the real savings related to, say, lower fuel consumption. According to IATA estimates, "a one percent reduction in fuel consumption translates into annual savings amounting to 100,000,000 dollars a year for IATA carriers of a particular State". (ICAO, 1998).
Aside from fuel, the evolution of onboard technology over the years has led to a dramatic improvement in safety, operational costs, workload reduction, job satisfaction, and so forth. The introduction of the glass cockpit concept allows airlines to reduce maintenance and overhauling costs, improve operational capabilities and ensure higher flexibility in pilot training.

It also helps in reducing minute errors which can be fatal in the later stages. One example of such case is Colgan Air's Flight 3407, which crashed in 2009. Apart from this, it also increases the productivity of each and every individual associated with the aviation industry.

Automation is also playing a key role in the aviation industry by controlling the flight management systems of the aircraft. The FMS is an incredible specialized system that has the ability to automate most of the in-flight tasks and jobs of pilots, air hosts, and air hostesses.
It has widely impacted the work of flight engineers or the navigators as it has reduced their workload by automating numerous tasks. Therefore, automation is beneficial for both passengers as well as airlines, as lower operational costs mean lower ticket prices. As a result of the lower ticket prices, airlines have more customers leading to more profits.

Nevertheless, to enhance its ability to assure due and consistent help to pilots, automation itself should be investigated more thoroughly to determine whether it is suitable in terms of human capabilities and limitations, ergonomics, cognitive suitability and instrument standardization, in order to gradually improve performance.

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UNVEILING CERIUM'S TOP TEN MOST CONNECTED AIRPORTS IN THE WORLD

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The aviation analytics firm, Cirium, recently released data on the most connected airports of 2022 based on the number of unique destinations served from each airport throughout the year. One interesting takeaway from the data is the absence of major Gulf hubs such as Doha and Abu Dhabi from the list. Dubai is the only airport from the region to make the top 10, coming in at seventh place.
In terms of British airports, London Heathrow achieved eighth place on the list.

Overall, the data shows that airports in Europe and North America dominate the list, with Asian airports being underrepresented. The study highlights the significance of connectivity for international travel and commerce, and the role that major airport hubs play in connecting people and businesses around the world. This data could be helpful for travelers and companies in order to make decision of destination, schedule, and also to make the best out of air transportation.

No.1 Frankfurt Airport
Germany's Frankfurt Airport managed to secure the number one spot on this list as it offered connections to 330 airports across the globe this past year. Dozens of airlines fly to the world's most connected airport every year.

No.1 Frankfurt Airport

No.2 Istanbul Airport
Istanbul Airport, offered a connection to 309 airports around the world last year. For centuries, Istanbul has been a crossroads for trade and transportation between the East and the West. Today, it continues to serve as a vital connection for trade and transportation even as transportation technology improves.

No.3 Paris Charles de Gaulle Airport
Paris's Charles de Gaulle Airport took bronze last year as it connected passengers with 308 airports. The airport serves as an essential connection within Europe while also connecting passengers to other continents.

No.4 Amsterdam Airport Schiphol
Another large European airport, Amsterdam Airport Schiphol, connected its passengers with 293 airports in 2022. This is another airport that provides a vital connection between Europe and other continents. One hundred twenty weekly flights connect Schiphol with London Heathrow as this is the most frequently flown route from the airport.

No.5 Chicago O'Hare International Airport
The Midwestern airport offers connections across North America and to other continents. The airport is also the home of the third-largest airline, United Airlines. Between various airlines, passengers were able to connect to 278 different airports from O'Hare this past year.

No.6 Dallas/Fort Worth International Airport
The home turf of the largest airline in the world, American Airlines, took sixth place in last year's connectivity tournament. The airport offered connections to 269 airports throughout the year. No doubt, a formidable score, but far from sufficient to take

the top spot. One hundred nineteen flights per week are operated from this airport to La Guardia International Airport, making it the most popular route from Dallas.

No.7 Dubai International Airport

Dubai is another centuries-old trade center that made this list. Last year Dubai Airport, home of the famous airline Emirates, serviced flights to 262 airports worldwide. Emirates is responsible for many of these connections as it utilizes Dubai as a central connecting hub in its operations.

No.8 London Heathrow Airport

In 2022 London's largest airport, London Heathrow, serviced connecting flights to 242 airports. This is an awe-inspiring feat considering London is serviced by several large international airports. The airport serves as the central hub for British Airways. While many other airlines operate to and from Heathrow. British Airways makes up a large portion of the flight offerings from the airport.

No.9 Leonardo da Vinci Fiumicino Airport

Rome's Leonardo da Vinci International Airport came in ninth place this year as it connected to 239 airports. The Mediterranean hub continues to be a vital link between neighboring cities, countries, and continents. The airport offers 94 weekly flights to Milan Linate Airport, making it the most frequented route for the airport.

No.10 Denver International Airport

This centrally located airport acts as an essential connection between US cities. It also offers numerous international destinations. The airport provides connections to 226 other airports. Denver serves as a hub for Southwest, Frontier, United, and SkyWest, providing the airport with many connections.

Source: Cirium, FlightRadar24

No.2 Istanbul Airport

No.3 Paris Charles de Gaulle Airport

No.4 Amsterdam Airport Schiphol

No.5 Chicago O'Hare International Airport

No.6 Dallas/Fort Worth International Airport

No.7 Dubai International Airport

No.8 London Heathrow Airport

No.9 Leonardo da Vinci Fiumicino Airport

No.10 Denver International Airport

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8. **Mobilize its team :** the exhibition offers an opportunity for the company to mobilize its staff, including its sales force around a unifying event.

Sources : Study of the Chamber of Commerce and Industry of Paris Ile-de-France

5

AIRBUS A330neo
Slow Start for Airbus' Newest Widebody

By Evans Kimani
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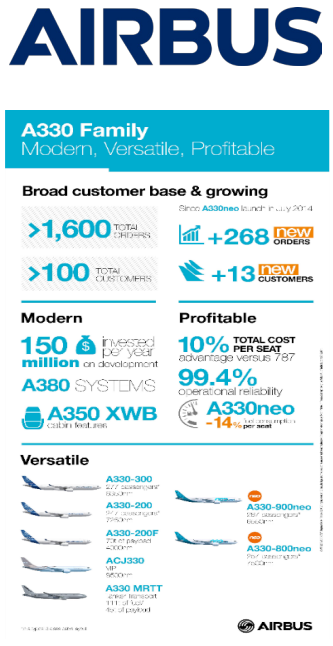

The Airbus A330 has been regarded as one of the most phenomenal wide-body aircraft to exist in the jet age. From its twin aisle cabins to its fuel economy as well as the range and capacity, the aircraft has been used widely around the world and is among the top best-selling aircraft from the Airbus Line Up.

The aircraft, which took its first flight in 1992 and was later introduced in 1994, has seen over 1,559 built for passenger, cargo as well as government operations. The Airbus A330 features the fly-by-wire system which enabled it to fly easily and as it was intended to take on the Boeing 767 and later on the Boeing 777 programs, the aircraft proved to be a crucial competitor for the Boeing program, as it was mainly favored for its cabin and cargo configuration as well as its ability to serve markets that had a high demand.

With the success of the Airbus A330 program, which had three variants including the A330-200, A330-300, and the A330-2F, Airbus chose to redesign the aircraft, with more fuel-efficient engines to take on the Boeing 787 program, and as a result, the Airbus A330neo (New Engine Option) was launched. The program had its first flight in 2017, with the first delivery to Lisbon-based carrier TAP occurring in 2018.

While the aircraft proved to be an improved version of the A330ceo (Current Engine Option) due to its longer range, improved efficiency, and newly modified Airspace cabins, the sales of its two variants, the A330-800 and A330-900 have been relatively low since its introduction, with only 92 deliveries including 7 for the A330-800 and 85 for the A330-900 program. The aircraft was developed to take on the Boeing 787 and 777 programs.

A330neo challenges

While Airbus had initially hoped that its current active customers would upgrade

from the current engine options to the new engine option aircraft, this has not been the case as many of the airlines were seen to switch from the A330 to the Boeing 787 program such as American Airlines, Turkish Airlines, Hainan Airlines and most recently, Hawaiian Airlines that chose to do a last-minute switch from the A330 program to go ahead and order aircraft from Boeing. The reasons may have varied with the airlines, but key issues such as fuel economics, cargo capacity, and range played a key factor in these airlines.

This is for the Boeing 787 Dreamliner, many of the airlines were reluctant to change their engine supplier, of which the A330neo currently provides only one, which is the Rolls Royce Trend 7000 Engine as compared to the predecessor which provided the General Electric CF6, Pratt & Whitney PW4000 and Rolls Royce Trent 700. As airlines seek to reduce costs through the introduction of several engine options into their fleet, this formed one of the key concerns for many of the carriers.

Furthermore, as the A330neo operator's aircraft are relatively new as the program is less than 30 years old, many of the airlines were not in a hurry to switch to an upgraded version of the aircraft as the current aircraft served their purposes and met the requirements that they intended to achieve, thus reflecting the relatively quick timing that the A330neo program was developed in.

Airbus A330-900neo		versus	Boeing 787-9	
63.66 m	208 ft 10 in	length	63.00 m	206 ft 8 in
64.00 m	210 ft	wingspan	60.17 m	197 ft 5 in
0.00 m²	0 ft²	wingarea	347.00 m²	3,735 ft²
16.79 m	55 ft 1 in	height	16.90 m	55 ft 5 in
2		engines	2	
320 kN	72,000 lbf	thrust per engine	316 kN	71,000 lbf
640 kN	144,000 lbf	total thrust	632 kN	142,000 lbf
242,000 kgs	534,000 lbs	MTOW	252,651 kgs	557,000 lbs
12,130 km	6,550 nm	range	15,394 km	8,313 nm
M0.86		cruise speed	M0.85	
287 passengers		capacity	280 passengers	

© Aviator Joe

The A330neo's near comparison with its bigger program, the Airbus A350, may have factored in the relatively low sales. This is as on paper, the A350 has proved to have a near similar performance and capability to the A330neo, which resulted in airlines instead of complimenting the two, to rather opt for the bigger version. However, airlines such as Air Mauritius, French Blue, and Delta Airlines have proved the reliability levels of having both aircraft compliment their operations.

While the A330neo has proved its cost-benefit, the aircraft has proved to be relatively costly as compared to The Boeing 787. As the Boeing 787-9 costs approximately $292.5 Million, the Airbus A330-900 costs nearly $296.4 million which is slightly higher than the Dreamliner. As airlines choose to optimize their costs and ensure savings as they recover from the pandemic and economic shocks, the A330-900 has been on the receiving end on the pricing end.

Conclusion

While the Airbus A330neo program continues to market itself as an ideal twin-aisle aircraft, its challenges remain as its direct competitors appear to have the upper hand. While the program may have come late in the competitive arena, the prospect of it still developing and is one of the best-selling aircraft proves to be possible.

This is as current operators of the older A330s approach the period of retirement, the A330neo is considered to be a fruitful option for the aircraft due to the familiarity of the two types, furthermore, the aircraft can be crucial in the development of some of the African Markets, where a rebound in travel is currently taking place thus it remains essential, that African Airlines considering to enter the twin aisle segment to consider the aircraft due to its capabilities as its cabin, range, and fuel economics shall favor many of these airlines and the markets it serves.

Therefore, in the next decade, the A330neo aircraft shall be a crucial aircraft to pay attention to as it offers immense possibilities to many airlines in the world.

Aviation faces hurdles to hit goals for cutting emissions

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Airplanes are a minor contributor to global greenhouse gas emissions, but their share is sure to grow as more people travel in coming years and that has the aviation industry facing the prospect of tighter environmental regulations and higher costs.
The industry has embraced a goal of reaching net-zero greenhouse gas emissions by 2050. Experts who track the issue are skeptical.

Until the COVID-19 pandemic caused travel to slump, airlines were on a steady course of burning more fuel, year after year. Today's aircraft engines are the most efficient ever, but improvements in reducing fuel burn are agonizingly slow about 1% a year on average.

A huge aviation industry show near London, discussion about climate change replaced much of the usual buzz over big airplane orders.
The weather was fitting. The Farnborough International Airshow opened as British authorities issued the first extreme heat warning in England's history. Two nearby airports closed their runways, one reporting that heat caused the surface to buckle.

As airlines confront climate change, the stakes could hardly be higher. Jim Harris, who leads the aerospace practice at consultant Bain & Co., said that with airlines recovering from the jolt of the pandemic, hitting net zero by 2050 is now the industry's biggest challenge.

"There is no obvious solution, there is no one technology, there is no one set of actions that are going to get the industry there," Harris said. "The amount of change required and the timeline are big issues."
Aviation releases only one-sixth the amount of carbon dioxide produced by cars and trucks, according to World Resources Institute, a nonprofit research group in Washington. However, aviation is used by far fewer people a day.

Jet fuel use by the four biggest U.S. airlines, American, United, Delta and Southwest rose 15% in the five years leading up to 2019, the last year before air travel dropped, even as they updated their fleets with more-efficient planes.
Airbus and Boeing, the world's two biggest aircraft makers, both addressed sustainability during Monday's opening day at Farnborough, although they approached the issue in different ways.

Europe's Airbus and seven airline groups announced a venture in west Texas to explore removing carbon dioxide from the air and injecting it deep underground, while Boeing officials said sustainable aviation fuel, or SAF, will be the best tool, but not the only one to reduce emissions.

In September, airline leaders and President Biden touted an agreement to cut aircraft emissions 20% by 2030 by producing 3 billion gallons of SAF by then and replacing all conventional jet fuel by 2050. Climate experts praised the idea but said the voluntary targets are overly optimistic. Current SAF production is around 5 million gallons a year.
Sustainable fuel is biofuel made from cooking oil, animal fats, municipal waste or other feedstocks. Its chief advantage is that it can be blended with conventional fuel to power jet engines. It has been used many times

on test flights and even regular flights with passengers onboard.

Among SAF's drawbacks are the high costs, about three times more than conventional jet fuel. As airlines seek to buy and use more of it, the price will rise further. Advocates are lobbying for tax breaks and other incentives to boost production.
Policymakers see SAF as a bridge fuel a way to reduce emissions until more dramatic breakthroughs, such as electric- or hydrogen-powered planes, is ready. Those technologies might not be widely available for airline-size planes for two or three decades.

Several companies are designing and starting to build electric-powered planes, but most are small aircraft that take off and land vertically, like helicopters, with room for only a few passengers.
Electric-powered planes big enough to carry about 200 passengers, a medium-size jet by airline standards, would require much bigger batteries for longer flights. The batteries would weigh about 40 times more than jet fuel to produce the same amount of power, making electric airliners impractical without huge leaps in battery technology.
Hydrogen, on the other hand, "is a very light fuel," said Dan Rutherford, who leads the study of decarbonizing cars and planes for an environmental group, the International Council on Clean Transportation. "But you need a lot of volume to store it, and the fuel tanks themselves are heavy."

Despite that, Rutherford remains "cautiously optimistic" about hydrogen. His group believes that by 2035, there could be hydrogen-powered planes capable of flying about 2,100 miles. Others, however, see obstacles including the need for massive and expensive new infrastructure at airports to store hydrogen that has been chilled into liquid form.
Airlines face the risk of increasingly tough emissions regulations.

The U.N. aviation organization reached an agreement, voluntary until 2026, then mandatory, in which airlines can offset their emissions by investing in projects to reduce greenhouse gases in other ways. However, some major countries didn't sign it, and environmentalists say the scheme won't reduce emissions.
Even some in the airline industry, such as United Airlines Chief Executive Scott Kirby, have mocked carbon offsets, which companies can get for things such as paying to plant trees.

Trends that will revamp the airline industry

By Sarah Kibisi
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After the Covid-19 pandemic, the aviation sector is one of the sectors that were badly affected by the problem. The past two years have carried out surprise after surprise to the airline industry. A pandemic that began in 2020 was followed by acute downsizing and then by a sudden surge in demand, which started in March 2022 and for which no one was prepared. Arguably, it took each a year to recover. The past is not the future, but some clear trends emerged in 2022. Threats to the air safety infrastructure mounted.

A vanguard pilot deal at Delta Air Lines reached night, probably changed the labor landscape. United Airlines edged into the glare of news and politics and potential designation as a hot stock, while "leisure travel" emerged as a hot topic. And yet, it remains clear that for some global airlines, the post pandemic economy remains troubling.

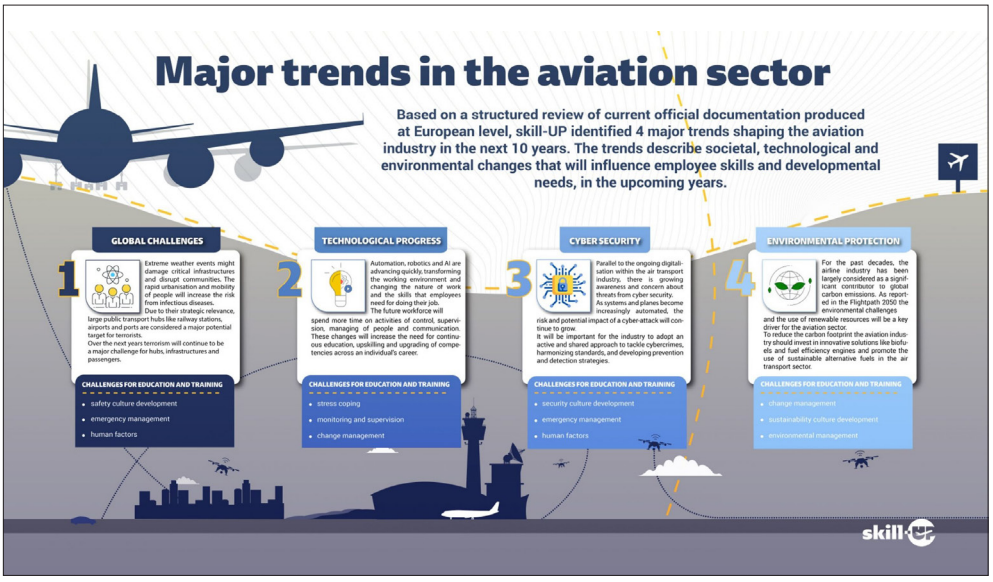
Here are the top six trends:
Threats to Aviation Safety Will Continue
Paul an Airline Flight manager in USA, says U.S. commercial aviation provides what may be the safest transportation system in the history of the world, but two threats to the safety margin, from both outside and inside the industry, mounted in 2022.

In January, 5G deployment by telecommunications companies suddenly became a scary issue, as Verizon and AT&TT sought to install towers too close to airports. In June, they agreed to delay some implementation until July 2023 as airlines retrofit aircraft. The dispute shocked the airline industry, which had not envisioned that anyone would so blatantly place financial concerns ahead of safety concerns. Airlines have been upgrading radar altimeters to improve their ability to tolerate interference," the Air Line Pilots Association said in a recent press release. The FAA is strongly urging airlines to complete the updates by July 2023, so that aviation safety can be assured when mobile wireless goes to full power at that time. But it's not so much the details that matter as the concept that safety is now negotiable.

Just as alarming is the continuing push for single pilot commercial aircraft.
Over 40 countries including Germany and the United Kingdom have asked the United Nations body that sets aviation standards to help enable single-pilot flights, and the European Union Aviation Safety Agency has also been working with plane makers to determine how solo flights would operate.

Dennis Tajer, spokesman for the Allied Pilots Association, which represents American pilots, recently told NBC News that single-pilot is a bad idea. "It is a soul-to-soul eye to eye contact with that other professional pilot that often makes the difference between really bad headlines or an uneventful flight," Tajer said.

United Airlines Will Lead the Industry in Generating Buzz
It is worth noting that CEO Scott Kirby was among the approximately 300 guests invited to the state dinner President Biden hosted for President Emmanuel Macron of France on Dec. 1. United's continued emergence as a player in the Biden Administration reflects the influence of Josh Earnest, once President Obama's spokesman, now a United senior vice president.



In particular, United has been a leading advocate for carbon neutral flight operations. But it's hard to think that, in the end, United will be significantly more carbon neutral than its competitors. United "does spaghetti theory greenwash better than others," says aviation consultant Bob Mann. "Throws a lot of it up on the wall, and sees what sticks.

"I have always thought there to be no good result from corporations weighing in publicly on politics," Mann says. "Why upset your customers and employees by taking a stand?"

United May Also Lead the Industry in Share Price Gain

United has the greatest exposure to the ongoing recovery in higher-margin international travel among US airlines," Becker wrote in a recent note. "The carrier has more lie-flat seats than all other US airlines combined and its hubs position it well to capture spending by high-net-worth consumers.

Additionally, she said, United "has a strong liquidity buffer that should allow it to continue paying down debt and navigate any macro choppiness."

Leisure Travel Might Still Be a Thing in 2023

During 2022, the combination of business with leisure travel into leisure travel emerged as a popular subject for analysis. Presumably, leisure passengers travel at midday instead of the start and end of the day; travel midweek instead of Friday and Monday; fly to Bozeman to work remotely and also ski, and sit in Delta Comfort or Main Cabin Extra or United Premium Plus, because they can.

In October, Southwest CEO Robert Jordan said he sees the changes but "What I think we want to be careful with is trying to decide that this is forever." And consultant Mann said, "I will be shocked if 'leisure' makes it into Webster's dictionary."

Labor Peace Will Follow the Delta Pilot Deal

Most pilot groups have been in contract talks for years. Talks have moved slowly partly because in pattern bargaining, every participant watches every other participant. Nobody wants to be first.

The risk of making deals too soon was clear in 2022. United ALPA leadership was attacked because in June, it tentatively accepted a 14.5% pay raise within 18 months. Then American offered 17%, soon raised to 20.4% over three years. Still, in October American pilots recalled their negotiating committee, which had tentatively agreed to cap the potential match with peers.

Delta ALPA reached an agreement in principle with the carrier, after three and a half years of negotiations. The deal would provide an immediate 18% pay raise and a cumulative raise of 34% after three years, plus multiple work-life balance improvements.

Recovery Will Be Tougher for Foreign Carriers Than for U.S. Carriers.

Generally, U.S. and major European airlines look to be in a good spot, with high demand and reduced capacity, while carriers of Asia – particularly China – have yet to recover.

Ishka, a London-based global aviation information and advisory business, says that nearly the entire global airline industry could be threatened by the combination of inflation, high fuel prices, the strong dollar and deteriorating consumer confidence.

"There are a major macroeconomic challenge that is driving uncertainty, particularly in Europe," said Siddhartha Narkhede, Ishka senior analyst Narkhede said in an email. However, he said, "The North American and major European airlines have the benefit of relatively stronger balance sheets and liquidity so they are relatively better positioned to face the challenging economic environment."

The International Air Travel Association said it expects the global industry to earn a $4.7 billion profit in 2023 after three years of losses that declined to $6.9 billion in 2022. The expected profits for 2023 are razor thin," said Willie Walsh, IATA director general, in a prepared statement. "But it is incredibly significant that we have turned the corner to profitability.

THE FUTURE OF SUSTAINABLE AVIATION

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Creation of a sustainable future for commercial aviation is significantly challenging as there is no silver bullet to achieving it, but in one way or another its achievable.
It requires many and varied solutions, some of which may already exist, while others we cannot yet imagine. Etihad Airways' Strategic Advisor and former Group CEO for the last five years, Tony Douglas, has worked in the aviation industry for over three decades. In terms of sustainability, Douglas says he has seen more change in the last five years than in the previous 25 combined. One thing is certain, he says: "There's no silver bullet. Only a fool would say, 'Pull this one lever. Press that one button. And that will be the big breakthrough.'"

The airlines themselves must be "front and center," says Douglas. But this challenge will only be solved with active input from stakeholders across the spectrum: governments, policy makers and regulators, fuel companies and power-plant manufacturers, infrastructure owners and aircraft manufacturers. It's clear that to secure a sustainable future for aviation, collaboration is key.

Douglas stressed that responsibility for ensuring a sustainable future for aviation cannot lie exclusively with the airlines—but not because they are trying to shy away from the environmental effects of commercial aviation, which emits roughly 2.1% of total global carbon output. In fact, quite the contrary.

Sustainable fuel

This is one of a major objective of the Emirate of Abu Dhabi and Etihad Airways.
Etihad has become a carbon reduction leader in the sector. Nearly two years after the airline announced its 2050 net zero commitment and 50% reduction by 2035, at the International Air Transport Association's 2021 AGM, the Fly Net Zero resolution was passed by all member airlines, committing them to achieve net-zero carbon emissions in their operations by 2050. Alongside this commitment to Fly Net Zero, Etihad had previously set an interim sustainability goal of 50% less emissions by 2035 compared to 2019 levels.

Etihad has introduced innovative aircraft like the Boeing 787- and the Airbus A350-1000, and the company is actively engaged in the development of sustainable aircraft fuels. Through its Greenliner and Sustainable50 programmes, it has also introduced numerous sustainable business practices in the air and on the ground and created environmentally conscious consumer programs. Through these and other initiatives, Etihad has shown the sector, and the world, how commercial aviation can move toward a sustainable future.

The existential threat

Significant developments in aeronautical technologies have advanced the aviation industry in recent years, and fleets are being futureproofed through purchases of the most efficient aircraft available. Engagement with governments and regulatory bodies is improving the way airspace is used. Nevertheless, there are still significant challenges to be overcome to get the sector to net zero by 2050.

"If you fast-forward 20 years, any airline that has not embraced and taken seriously this challenge simply won't exist"

Tony Douglas, Etihad Airways' Strategic Advisor and former Group CEO

Aside from the realities of the physics of flight, people will always want to be on the move. Demand for air travel will keep growing in the foreseeable future, according to IATA, whose recent figures show that demand is expected to reach 94% of 2019 levels in 2023 and will increase to 103% in 2024 and 111% in 2025. This is a daunting prospect environmentally, but Douglas is clear that there is only one flight path, and its destination is sustainability. "It will happen because it has to happen," he says.

Openness and innovation

Significant technological advances in aviation have recently increased efficiency. The Boeing Dreamliner, the most efficient aircraft in the world, is 22% more fuel-efficient than an Airbus A330, the previous generation of aircraft. An engineer by background, Douglas notes that in previous generations, an expected improvement in efficiency would have been more like 2.2% -a fraction of recent gains. These are tectonic technological shifts, moving the sector in the right direction.

Operating the 787-10 Dreamliner and Airbus A350-1000 aircraft, Etihad already has the world's most efficient fleet. But the airline has gone further. Its Greenliner and Sustainable50 programs are being used as flying testbeds for new initiatives, procedures and technologies to reduce carbon emissions.

"What we love about Greenliner and Sustainability50 is that they are attracting people to come to us with ideas that wouldn't normally have been operating in the aviation industry"

According to Tony Douglas, Etihad Airways' Strategic Advisor and former Group CEO, The Greenliner uses the Dreamliner as a base to experiment with more eco-friendly practices both in the cabin and on the wing, from eliminating single-use plastics to using a percentage of sustainable aviation fuel on some of its flights. Building on learnings taken from the Greenliner, Sustainable50 was named in recognition of both the 50th anniversary of the establishment of the UAE and Etihad's commitment to net-zero carbon emissions by 2050. It uses the Airbus A350-1000, which was developed in collaboration with Etihad to incorporate sustainable aviation fuel, optimize waste and weight management and improve data-driven analysis.

Pushing the data envelope even further, Etihad has partnered with SATAVIA, a UK-based green aerospace company with a revolutionary contrail prevention technology that aims to reduce the carbon impact of every flight by up to 60%. Douglas notes that these initiatives are drawing ideas from outside the sector, as well. "What we love about Greenliner and Sustainability50 is that they are attracting people to come to us with ideas that wouldn't normally have been operating in the aviation industry," he says.

Collaboration is key

Airlines only exist to serve the traveling public, "and we are only going to be able to serve them for the longer term if we can crack this problem," Douglas says. To meet the challenge, stakeholders from across the spectrum must collaborate to ensure that sustainable aviation fuel becomes more affordable and readily available, and to make the business case for a radical rethinking of flight paths and the way airspace is used.

Credit: Reuters

ORDERS AND DELIVERIES 2022: HOW BOEING AND AIRBUS COMPARE

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outer rendering by FIXION - MMS

The year 2022 saw the aviation industry anticipate several challenges. From the continuous recovery from the pandemic, to the ongoing supply chain issues on aircraft such as the Airbus A220 and design issues on the Boeing 787 Dreamliner that saw aircraft deliveries delay and other airlines forced to ground their aircraft. The industry however saw a 'V' shape recovery in the demand of travel by passengers that saw various continents including Africa, record a 90% rebound of travelers as late as November 2022. This was mainly affected by the lowering of restrictions by countries around the world which facilitated the recovery.

Airbus and Boeing demonstrated a competitive year with its orders and deliveries, with its key narrow body and twin aisle aircraft taking their various leads in their portfolios. While narrow bodies appeared to be the most ordered and delivered too, there was a significant gain in the amount of orders placed on their best selling twin aisle aircraft, with Airbus leading with the Airbus A350 and Boeing with the 787 Dreamliner.

Airbus Orders & Deliveries

During the year of 2022, Airbus delivered a total of 661 aircraft to 84 customers around the world, which represented an 8% increase from the previous year where they had delivered 611. The European manufacturer however failed to attain its initially desired target of 700 aircraft during the same period, sighting issues with supply chain with its programs such as the A220, while various customers had challenges with their supply chain issues which resulted to the delays of some of these aircraft.

Another factor was the ongoing Russia-Ukraine war which affected the deliveries of the intended Russian customers some of the aircraft were supposed to be delivered to. The Airbus CEO Guillaume Faury regarded the failure to reach their target due to the given complexity of the environment.

Out of the global deliveries done by Airbus, 5% of the deliveries were for the Middle East & Africa region, with key airlines such as Ethiopian Airlines benefitting from their scheduled deliveries of aircraft. This comes as the airline placed an order for 4 Airbus A350-1000 aircraft, making

it the first airline in the region to order the aircraft. Other airlines such as TAAG Angola, the Luanda based carrier placed a delivery for 5 new A220-300 aircraft that are set to join the airline in the course of 2023. These orders joined the total 1078 orders that Airbus received during the year thus resulting to an overall backlog of 7,239 aircraft, showing a relatively positive outlook for the manufacturer.

Boeing orders & deliveries

Boeing recorded a significant improvement from the challenges it has faced over the years, from the grounding of the Boeing 737MAX program to the consistent delays of the Boeing. 777X program that will see the aircraft be launched in 2025. Many of these challenges continued to present itself during the year, as the Federal Aviation Administration ordered the suspension of building and deliveries of the Boeing 787 program due to quality concerns. These effects were presented in the airlines orders and deliveries as the American manufacturer delivered a total of 480 aircraft.

However the manufacturer was able to gain 774 net orders, with the Boeing 737 MAX and 787 programs being the biggest beneficiaries, thus pushing the backlog to 4,578 aircraft. The launch of the Boeing 777-8F, which is widely considered as a replacement of the Boeing 747-8F which ended production in early 2023.

While Boeing delivered a high number of Boeing 737s, the 787 program recorded its lowest numbers since it began production due to the revamps it was required to do by the FAA, Boeing however as mentioned by Stan Deal, CEO of Boeing Commercial Airplanes, is expected to improve these numbers as the manufacturer was able to clear the gaps that it was required to fill, thus expecting a significantly improved year with the Dreamliner program. Boeing further delivered 5 Boeing 747-8F the last one of the year being the penultimate delivery of the 50 year old program that saw the revolution of mass international travel. The debut of the Boeing 777-8F program saw 12 orders from Silkway Airlines and Cargolux, who ordered 2 aircraft and 10 respectively.

Conclusion

Airbus managed to get the lead over Boeing in 2022 as the latter suffered various challenges in its production line, however, 2023 will prove to be a critical year for the largest aircraft manufacturers as the demand for more efficient aircraft continues,to grow as airlines are continuing to revamp their fleets to be more economical & to be able to serve their ideal markets at an optimum rate.

Photos; Airbus chart, Boeing Commercial Airplanes,

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The Top 10 analysis is based on the combined score of stealthiness, armament, speed, range, maneuverability and technology. Pilot opinion on capabilities of various warplanes during dog-fight training. All of these aircraft mentioned here are incredibly powerful and devastating, however none of them have seen combat against each other during military operations yet. The analysis is based on specifications, available data and technical comparison. Pilot training is also important, as performance of the actual aircraft depends from the pilot performance. This list do not contains aircraft that are currently under development of at the prototype stage. It includes only operational warplanes. ***Source: Military-Today.com***

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No.1 Lockheed Martin / Boeing F-22 Raptor (USA)

The F-22 Raptor air superiority fighter is almost invisible to radars. This aircraft carries a powerful array of weaponry. It is the most advanced and most expensive production fighter aircraft to date. Many of sensors and avionics of this plane remain classified. This advanced aircraft was adopted in 2003. It was never offered for export customers, even other allies and NATO countries. Currently it is the best fighter aircraft ever built.

No.2. Lockheed Martin F-35 (USA)

The F-35, also known as the Lightning II, is a new multi-role fighter. One of its variants, the F-35B achieved initial operational capability with the US Marine Corps in 2015.The F-35 has a configuration similar to that of Lockheed Martin's own F-22 design, however it is slightly smaller and has one engine instead of two. It exploits stealth technology, which reduces its radar cross-section and makes it harder to detect.

No.3. Sukhoi Su-57 (Russia)

The Su-57 is a new Russian fighter aircraft. It started life of the PAK FA (or Future Frontline Aircraft System). In 2017 this aircraft received a regular Su- designation. This new stealthy aircraft was designed intended to replace ageing MiG-29 and Su-27 fighters. It can be seen as a Russian answer to the US F-22 Raptor.

No.4 Chengdu J-20 (China)

The Chengdu J-20 is the new China's stealth fighter. It was designed to compete against fifth-generation fighters, such as the US F-22 Raptor and advanced fourth-generation fighters, such as the Russian Su-57 (previously known as PAK-FA). It is speculated, that development of the J-20 was assisted by the Russian MiG aviation company. Low-rate initial production of this stealthy aircraft commenced in 2015. First operational J-20 stealthy fighters were delivered to Chinese air force in 2016. This stealthy fighter was officially adopted by China's air force in 2017.

No.5 Boeing F/A-18E/F Super Hornet (USA)

Currently the Super Hornet is the most capable US Navy's multi-role fighter. It is based on the aircraft carriers can attack both air and surface targets. The Super Hornet is also in service with Australia as the main fighter aircraft.

No.6 Eurofighter Typhoon (Germany, Italy, Spain and the United Kingdom)

The Eurofighter consortium was formed in 1986 by Germany, Italy, the UK and, later, Spain, to develop a new multi-role combat aircraft, optimized as a beyond visual range interceptor with a secondary ground-attack capability. This aircraft carries advanced European-designed missiles. It is fitted with a very modern and comprehensive avionics package.

No.8 Sukhoi Su-35 (Russia)

The Su-35 multi-role fighter is a significantly developed version of the Su-27. It is being offered for export as a replacement for the Su-27 and MiG-29 fighters. In 2012 it has been adopted by the Russian Air Force.Developers refer the Su-35 as 4++ generation fighter. It is a very fast and highly maneuverable fighter with very long range, high altitude capability and heavy armament. It poses a great threat to Western 4+ generation fighters. The Su-35 is primarily an air superiority fighter. However it has secondary air-to-ground capability. This aircraft can carry enormous amount of weapons. It has 12 wing and fuselage hardpoints and can carry ordnance with a maximum weight of up to 8 000 kg.

No.7 Dassault Rafale (France)

The Rafale is in service both with the French Air Force and Navy. This multi-role fighter features some of the very latest avionics systems. Also some measures were taken to reduce radar cross section of this aircraft. This aircraft is very maneuverable. The Rafale can track 40 targets and fire at four targets simultaneously. This aircraft can hold its own against the latest versions of the American F-16. The Dassault Rafale will form the cornerstone of French air power until well into the 21st century.

No.9 McDonnel Douglas F-15 Eagle (USA)

The F-15 Eagle is a purpose-built air superiority fighter designed to penetrate enemy defense. Although now in service for over 30 years, it remains a formidable warplane. This aircraft scored more than 100 air kills and is considered among the most successful Cold War era fighters. The F-15 is equipped with weaponry and electronics, enabling it to detect, acquire, track and attack enemy aircraft, while operating in enemy-controlled airspace. This fighter carries a wide range of air-to-air missiles and is extremely maneuverable. Also it has strong high-speed maneuverability. Through modifications and upgrades the F-15 has been constantly improved.The F-15 Eagle is still in service with the US Air Force and is expected to remain operational at least until 2025. This aircraft has been exported to Israel, Japan and Saudi Arabia.

No.10 Mikoyan MiG-31BM (Russia)

The MiG-31BM is the latest version of the MiG-31 interceptor, which forms the backbone of Russia's air defenses. The upgraded MiG-31BM received a ground attack capability and became a true multi-role fighter. A project to upgrade Russian interceptors to the MiG-31BM standard was launched in 2010. By 2017 a total of 110 aircraft were reportedly upgraded. This upgrade allowed to extend service life of older aircraft for at least another 15 years. It is planned that all operational MiG-31s will be upgraded.This aircraft is able to undertake long-range interception, precision strike and defense suppression tasks. Both cockpits feature advanced displays allowing the crew to deploy precision-guided munitions. This fighter has a high speed, altitude and rate of climb, however it sacrifices maneuverability in order to achieve these capabilities. The MiG-31BM is among the fastest production aircraft. It can reach a maximum speed of up to 3 000 km/h.

DID YOU KNOW?

World's Shortest Commercial Runway

The runway at Juancho E. Yrausquin Airport on the Dutch Caribbean island of Saba is widely acknowledged as the shortest commercial runway in the World with a length of 400 m (1,312 ft) long.

Flanked on one side by high hills, with cliffs that drop into the sea at both ends, the airport is closed to jet traffic, but regional airline propeller aircraft are able to land there under waivers from The Netherlands Antilles' Civil Aviation Authority. The most common aircraft to land there are the STOL (short takeoff and landing)-capable de Havilland Canada DHC-6 Twin Otter and Britten-Norman BN-2 Islander.

A small ramp and terminal are on the southwest flank of the runway. The ramp also has a designated helipad. The terminal building houses offices for Winair, immigration and security, a fire department with one fire truck, and a tower. The tower is an advisory service only and does not provide air traffic control.

BELL TEXTRON' S V-280 VALOR REVIEW

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The Valor is a tiltrotor aircraft being developed by Bell and Lockheed Martin for the United States Army's Future Vertical Lift (FVL) programme. The aircraft was officially unveiled at the 2013 Army Aviation Association of America's (AAAA) Annual Professional Forum and Exposition in Fort Worth, Texas. The V-280 made its first flight on 18 December 2017 in Amarillo, Texas.

Developed on 5 June 2013, Bell Helicopter announced that the V-280 Valor design had been selected by the US Army for the Joint Multi-Role (JMR) Technology Demonstrator (TD) phase. The JMR-TD phase is the technology demonstration precursor to Future Vertical Lift (FVL). The Army classified the offering as a Category I proposal, meaning it is a well-conceived, scientifically or technically sound proposal pertinent to programme goals and objectives with applicability to Army mission needs, offered by a responsible contractor with the competent scientific and technical staff supporting resources required to achieve results.

JMR-TD contracts were expected to be awarded in September 2013, with flights scheduled for 2017. On 9 September 2013, Bell announced it would partner with Lockheed Martin to develop the V-280. Lockheed will provide integrated avionics, sensors and weapons to the aircraft. Additional partners were announced in the following months, including Moog Inc. for the flight control systems, GE Aviation for the engines, GKN for the tail structure, Spirit AeroSystems for the composite fuselage, Eaton Corporation as the distributor of hydraulics and

power generation systems and Astronics Advanced Electric Systems to design and manufacture power distribution systems.

Israel Aerospace Industries, the first international partner recruited for the V-280, will supply the nacelle structures and Textron sister company TRU Simulation & Training will build a high-fidelity marketing simulator and desktop maintenance trainer. On 2 October 2013, the U.S. Army awarded a technology investment agreement (TIA) to Bell for the V-280 Valor tiltrotor under the Joint Multi-Role programme. Awards were also given to AVX Aircraft, Karem Aircraft and a Sikorsky-Boeing team. The JMR programme is not intended to develop a prototype for the next family of vehicles, but to develop technologies and interfaces.

On 21 October 2013, Bell unveiled the first full-scale mock-up of the V-280 Valor at Association of the United States Army 2013. On 11 August 2014, the US Army informed the Bell-Lockheed team that they had chosen the V-280 Valor to continue with the JMR demonstration programme. The Boeing-Sikorsky team offering the SB-1 Defiant was also chosen. Announcement of the selections was officially made on 3 October 2014 and the teams will begin building technology demonstration aircraft for test flights beginning in 2017. Bell unveiled a full-scale mock-up of the V-280 Valor.

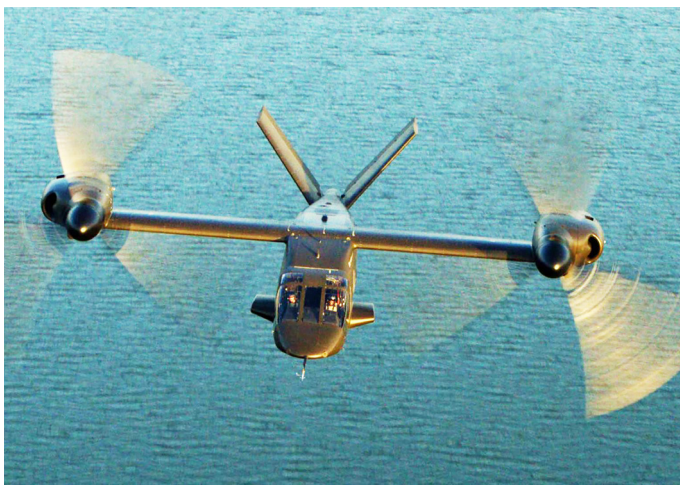
Bell and Lockheed claim an AV-280 variant can launch rockets, missiles and even small unmanned aerial vehicles forward or aft with no rotor interference, even in forward flight and cruise modes with the rotors forward. The V-280 prototype (air vehicle concept demonstrator, or AVCD) was powered by the General Electric T64. The specific engine for the model performance specification (MPS) was unknown at the time but has funding from the Army's future affordable turbine engine (FATE) programme. The V-tail structure and ruddervators, made by GKN, will provide high levels of manoverability and control to the airframe. It will be made of a combination of metals and composites. Features in the interior include seats that wirelessly charge troops' radios, night-vision goggles and other electronic gear and windows that display three-dimensional mission maps.

Special emphasis has been placed on reducing the weight of the V-280 in comparison to the V-22, which in turn would reduce cost. To do this, composites are used extensively in the wing, fuselage and tail. Wing skins and ribs are made of a honeycomb-stiffened 'sandwich' construction with large-cell carbon cores for fewer, larger and lighter parts. Skins and ribs are paste-bonded together to eliminate fasteners. With these measures, costs are reduced by over 30 percent compared to a scaled V-22 wing.

Bell expects the V-280 to cost around the same as an AH-64E or MH-60M. While the Osprey has a higher disk loading and lower hover efficiency than a helicopter, the V-280 will have a lower disk loading and longer wing for greater hover and cruise efficiency. As the AgustaWestland AW609 has already performed autorotation, it is expected that the V-280 (with similar disc loading) will demonstrate the same capability.

In October 2021, Bell and Rolls Royce jointly announced that the V-280 Valor powerplant would switch from the T64 turboshaft used on the prototype to a derivative of the Rolls- Royce T406/AE 1107C used on the Osprey, which would be named the AE 1107F. At the same time as increasing power from 5,000 to 7,000 horsepower, the AE 1107 is a known element in tiltrotor aircraft with its two decades of prior use which lowers sustainment costs and decreases risks of the project.

Source: Bellflight.com



WingCopter 198:

The World's first triple-drop delivery drone

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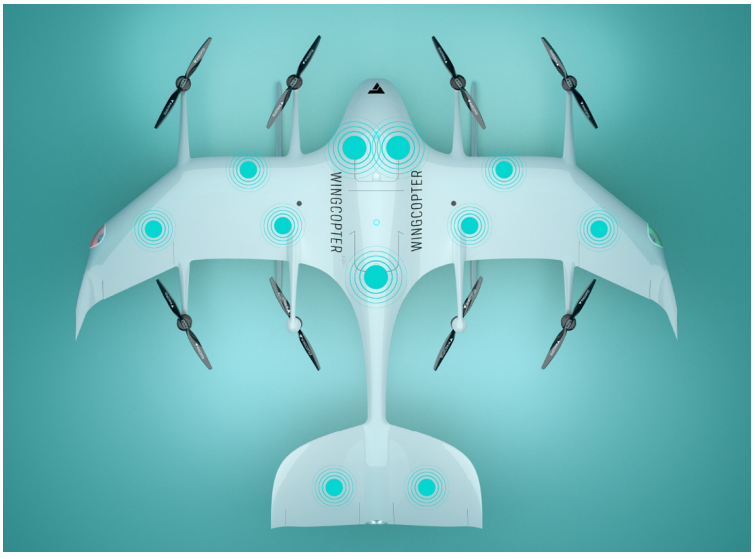

Wingcopter 198, the world's first triple drop delivery drone is manufactured by Wingcopter GmbH, a German aerospace company that designs and manufactures unmanned eVTOL delivery drones capable of providing last-mile delivery as well as mapping, surveying, and inspection. The autonomous delivery drone was designed to remove a technical bottleneck hindering the growth of drone transport services.

Wingcopter 198 (W198) the latest commercial drone was launched by wingcopter in April 2021 and is the world's first triple drop delivery drone. It has an external dimension of 198 x 152 x 65 cm and can carry up to three packages up to 5 kg. The drones, have automated sensors and software to avoid obstacles and drop parcels at designated sites, enabling one operator to monitor and control up to 10 of these new drones
The Wingcopter 198, is capable of making three

separate deliveries per flight,. Wingcopter couched this multi-stop capability as a critical feature that will allow it to grow a cost-efficient and hopefully profitable drone-delivery-as-a-service business.

The company, which was founded in 2017, got its start manufacturing drones. It used the revenue to scale and now expand its business model to include drone-delivery-as-a-service. The company's Chief Executive Officer Mr. Tom Plümmer believes that its ultimate aim is to create logistical highways in the sky. The company's website is now promoting the delivery business, which aims to provide healthcare, e-commerce and grocery delivery, among other services.

The key to this delivery nirvana, according to the company, is its patented tilt-rotor propellant mechanism that combines the advantages of two drone types — the multicopter, which gives drones their smooth vertical takeoff and landing capabilities and the ability to hover precisely in the air, with the fixed wing, which provides fast flight times over long distances.

The new model Wingcopter 198 has a top speed of 93 miles an hour and can carry payloads up to 13 pounds for a distance of about 47 miles from a single battery charge. It can travel up to 68 miles when carrying lighter cargo. The tilt-rotors can also automatically respond to gusts of wind and other inclement weather conditions. Its architecture includes eight motors for redundancy and safety reasons.

The drones, which are equipped with sensors and software to avoid obstacles and drop parcels at designated sites, are all automated. This level of automation allows one human operator to monitor and control up to 10 of these new drones from a computer equipped with Wingcopter's control station software, from anywhere in the world. According to the company's CEO Mr.Plümmer, running the drones is as simple as the operator pressing "start" on the software program.The company's top boss also touted the scalability of the tilt-rotor system, noting that it could be applied (theoretically) to a larger aircraft to carry cargo, or even human passengers.

Plümmer believes that it's just a cost factor said, noting that the company already employs people who have the experience in aviation and aerial engineering required to one day take the tilt-rotor aircraft to scale. "However, we thought, let's start with the smaller version get these thousands of flight hours, thousands of kilometers, and take these learnings into every next generation of Wingcopter so they will constantly get bigger, first for cargo, later for mobility."

The Company has drawn a hard line at working with any company or government institution that would use their drones for military or surveillance purposes."It's mainly moral," he said of the objection. "We believe it would be really not fitting to our vision. Our vision is to save lives and improve life by using drone technology and drone solutions."

Looking to the future, the company is currently pursuing certification from the Federal Aviation Administration that would allow it to operate commercial flights in the United States. If they receive this certification, they will be one of only a handful of competitors operating in the space. They've also set their sights on another funding round, fresh off the heels of a $22 million Series A round in January. The company has around 120 employees, but with an additional injection of capital in a Series B, it could hire people with expertise in AI, piloting and production.

Dornier Seastar: The World's Most Advanced Amphibious Aircraft

By Paul Mwangi
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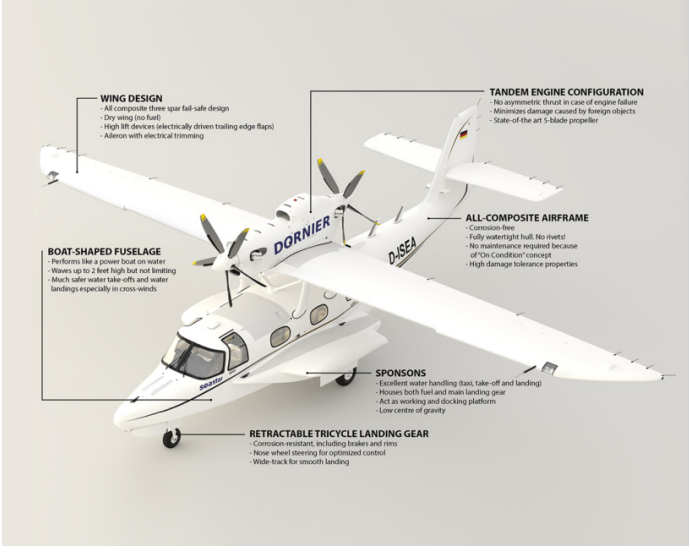
The Dornier Seastar is a turboprop-powered amphibious aircraft built largely of composite materials. Developed by Claudius Dornier Jr. of Germany, it first flew in 1984. The design is owned by Claudius Jr's son, Conrado, who founded Dornier Seawings AG (now Dornier Seawings) to continue work on the project after two previous firms, Claudius Dornier Aircraft and Dornier Composite Aircraft, both went into bankruptcy.

The Seastar is a state-of-the-art, amphibious aircraft designed with purpose and equally effective for land and water operations. This unrivalled versatility and performance along with best-in-class cabin space, allows for entirely new missions. In the spirit of pioneering Dornier flying boats, the Seastar is superior in every important measure – speed, range, safety, cabin size and lower maintenance costs.

Dornier's Pioneering Heritage

The Dornier Seastar aircraft program builds on the rich experience of 100 years of creating flying boats. This heritage and experience are deeply embedded in the company's DNA as engineering experts in aviation. It incorporates features that would be difficult to replicate without the experience gained in millions of flying hours and flight missions that Dornier flying boats have completed worldwide since the mid-1910s.

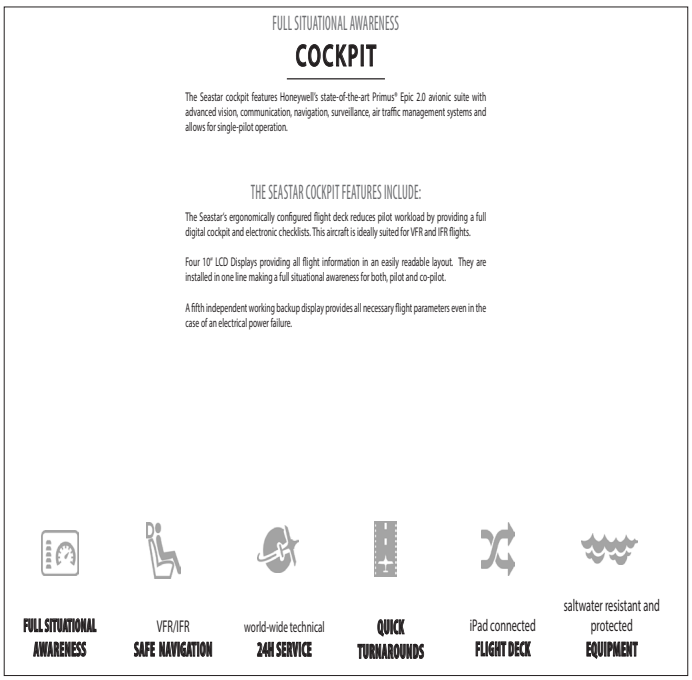


In 1910 Professor Claude Dornier began working with Count Zeppelin – the famous airs hip pioneer – from this point on the seeds for a family tradition in aviation were sown. The Dornier name was first associated with aircraft production in 1914 when the first all metal flying boat was built. Over the lifespan of the company, Dornier has produced more than 100 designs for both the civil and military market and manufactured over 10,000 aircraft.

Dornier rose to prominence in the 1920s and 1930s as a manufacturer of large, all-metal flying boats, including the 1924 built Wal and the 12 engine DO-X in 1929. The company also built a series of successful land planes, including the Komet and Merkur that were used by Lufthansa and other European carriers.

Superior Design

The Seastar primary design philosophy is pertinent to enhanced safety of the aircraft and its occupants. Equipped with two proven and highly reliable Pratt and Whitney PT6A-135A turboprop engines in tandem configuration, effectively eliminating possibility of asymmetric thrust in the event of an engine failure. It offers twin-engine reliability with smooth single-engine handling. The wing consists of a single continuous airfoil structure with a three spar fail-safe design. A similar philosophy applies to the fuselage with a rigid structure and integrated design resulting in long structural life and high damage tolerance properties. The 'boat hull' is designed to cope with rough water conditions.



Operating Economics

In terms of direct operating costs, the Seastar is the most economical aircraft in its class. The all-composite, corrosion-free boat hull signifi- cantly reduces maintenance cost compared to other aircraft. Due to its manufacturing quality and durability, the residual value is poised to be significantly higher than that of metal aircraft.

Performance

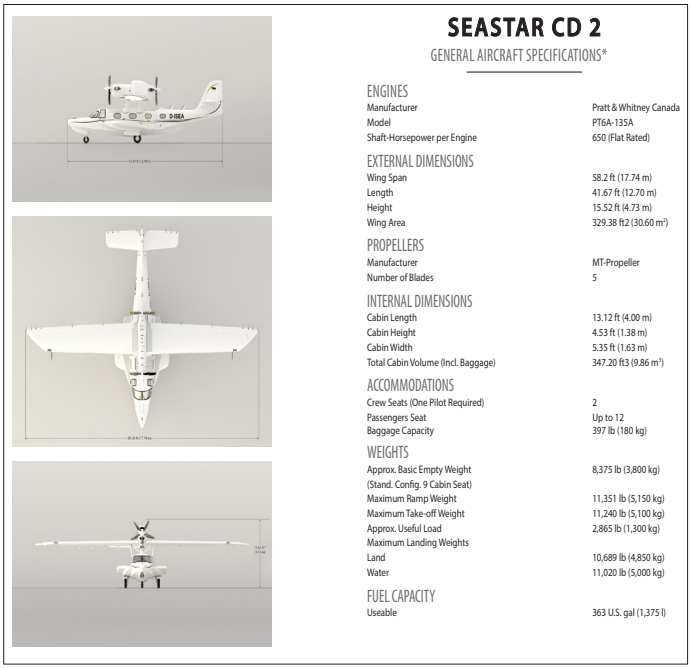
With a maximum cruise speed of 180 KTAS, the Seastar is 40 KTAS faster than its nearest competitor. The powerful Pratt & Whitney PT6A- 135A turboprop engines provide the Seastar with 1,300 horsepower flat-rated, allowing the aircraft to become airborne quickly with take- off runs of only 2,244ft/684m on land and 3,445ft/1,050m on water (obstacle 35ft/10,67m, MTOW).

The Seastar offers twin-engine reliability with docile single-engine handling and flying characteristics with a stall speed of only 66 KCAS in landing configuration (on land).
Features

The Seastar has a set of design features that create advantages not found on any other amphibious aircraft, including the wide-track corrosion-resistant landing gear including brakes and rims, all the way to the center-line engine configuration. All features combined lead to a safer and lower operating cost aircraft ideally suited to carry out various missions. A hydro stern thruster makes the Seastar turn around on water 360° in both directions.

Durability

Conventionally designed aircraft and helicopters require a high level of time-consuming and costly maintenance, but the Seastar design reduces this complexity and allows operators to focus on missions.



Designed in Germany and strictly adhering to Dornier's high- quality standards, the Seastar with its all-composite hull is resistant to extreme environments including flotation on saltwater seas and oceans. The all-composite airframe maintenance concept is 'On-Condition'. Certification approval for 30,000 flying hours or 37.500 flight cycles, after which a special inspection is required.

Cockpit

The Seastar cockpit features Honeywell's state-of-the-art Primus® Epic 2.0 avionic suite with advanced vision, communication, navigation, surveillance, air traffic management systems and allows for single-pilot operation.

The seastar cockpit features include: The Seastar's ergonomically configured flight deck reduces pilot workload by providing a full digital cockpit and electronic checklists. This aircraft is ideally suited for VFR and IFR flights. Four 10" LCD Displays providing all flight information in an easily readable layout. They are instal led in one line making a full situational awareness for both, pilot and co-pilot.
A fifth independent working backup display provides all necessary flight parameters even in the case of an electrical power failure.

Cabin

The Seastar offers the most versatile and spacious cabin in its class, ensuring passengers a comfortable ride and an enjoyable experience. The large windows flood the cabin with natural light and offer outstanding visibility to the outside. A large-sized sliding door offers easy access from the cabin to the baggage compartment.

Corporate and VIP Configuration

- 9 superior comfortable seats
- Ergonomically designed interior
- Cabin wide flat floor
- Lavatory (optional)
- Upgrade to 12 cabin seats by a triple seat bench (optional)
- A spacious cabin with generous shoulder and legroom
- 6 premium leather seats and lavatory (optional) or
- 7 premium leather seats without a lavatory
- Ergonomically designed interior
- Cabin wide flat floor
- Customized club-seating options
- Super-Yacht feeling

Government and Special Missions

Used as a multi-role platform, the cabin of the Seastar is customized to your needs. From medical configuration to any other special mission equipment, the layout is tailored to your operational requirements. Additionally, the sponsons act as a working and docking platform to increase flexibility and ease of use.

- Most advanced amphibious mission platform
- Multi versatile mission equipment integration
- Continuous seatrails over the entire cabin floor
- Additional mission- equipment space in the
- baggage compartment

The Seastar is a multi-purpose aircraft delivering unmatched versatility at low operating costs. It covers a wide operational range of VIP-transport, commercial, governmental, special and corporate missions. Just tell us your requirements and we will tailor the Seastar to meet your demands.

Commercial and VIP Missions

The Seastar is the ultimate amphibian for discerning owners looking for a comfortable and reliable craft on water as well as land, providing fast access to yachts, waterfront property, isolated lakes, resorts, ocean bays and island coves or just airport-to-airport connectivity. Wherever the destination, the Seastar is the safest and most enjoyable way to get there.

The standard and executive cabin interiors offer ergonomically designed seating, an optional lavatory and buffet unit. A large entry door allows for easy passenger boarding and cargo loading. In-flight access to stowed baggage also enhances the exceptional experience of travelling with your personal Seastar.
The Seastar's capability to operate on water or land provides unforeseen and surprising flight opportunities for commercial operators. Using a ramp or floating dock to transition between water and land, passengers may board the aircraft easily without the need of an airport or terminal.
Direct operating costs are significantly lower than other aircraft of its size, due to higher cruise speeds and significantly reduced maintenance costs.

Government, Corporate and Special Missions
The Seastar is the ideal aircraft for operations such as coastal surveillance, patrolling, environmental control, fisheries protection, emergency medical services, search and rescue, drug interdiction and disaster relief to name a few.

Used as a multi-role platform, the Orca (special mission configuration) can perform combined operational tasks usually requiring both air and seaborne assets, producing faster response times, increased operational flexibility and reduced costs compared to existing fixed wing, helicopter and seaborne craft.

With comfortable seating for up to twelve passengers and low direct operating cost, the Seastar is the best choice for fast transportation and corporate mobility on water and land. It can be configured to fulfil a wide range of special missions. It is widely claimed that the Seastar is one of the fastest flying boats on the market.

Etiquette rules all travellers should embrace

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Whether you are a first time passenger or not, enjoying your pleasant flight is your responsibility and that of the plane. When flying turns out to be unpleasant, airlines are largely to blame. They sometimes tend to overbook flights and stuff passengers into seats with just a few inches of breathing space. Just to ensure you enjoy your flight with no complains **Here are some of the dos and donts to embrace to your final destination.**

Travelers can be at fault

Paul Markson a former pilot from Beriut says we have gone from seeing flying as a glamorous affair worthy of dressing up to a stressful and uncomfortable experience, but that shouldn't be an excuse for misbehaving on the plane. For Fliers who may need a refresher on in-flight good manners, this guide is for you.

Keep away from boarding crowd

Markson also says you are sitting at the gate, doing your best to exist at the airport in peace. For some people, it does not matter what time boarding begins; they are going to descend on the boarding zone like a pack of hyenas intrude on a fresh carcass. Don't be part of the crowd.

Be a civilized member of society and wait until your boarding group is called. It's great to be early for your flight and ready to go and it's fair to be worried about overhead space filling up- but you can't get on the plane yet anyway, cool your jets and wait.

Marksons adds that sitting in your seat depends on your seat assignment. The good manners of sitting in your seat depend on your seat assignment. If you are in the aisle, your job is to be a gracious gatekeeper to let the other passengers in and out of the row. If you are seated by the window, you have the final say on whether the shade stays up or down , excluding flight attendant instruction, but are mindful of when solar rays are burning the corneas of your fellow travelers.

Keep your shoes or socks on

Joel Peter a regular traveler to Uganda adds that we all know flying is uncomfortable and can make your feet swell. It's nice to take a load off and get your tootsies out. But being on a plane is being in public, and public is dirty.
If it doesn't gross you out to be

barefoot on a plane, remember it will probably gross out the people around you. Do them a favour and at least don socks for the occasion, and keep your feet away from their armrest.

Think before you lie down

Joel notes that lying down on your airplane seat is another heated debate that drives people to violence. It's true that you paid for your seat and should be able to use it as you'd like, but there's etiquette. Before you fling your seat back to get that extra two inches of lean, take a look at who's in the seat behind you.

Leave your egg or G.nuts home

Patricia is an Air hostess on the Kenya Airways and narrates her ordeal; She recalls one traveler who entered with boiled eggs and the whole room was filled with bad odour. It was no much and some the passengers just asked her to keep them in her bag and eat them from her comfort. Be mindful of the food you pack for your flight. The fragrance of food is subjective; you may love the smell of steamed grow but the rest of the plane may have a different take."

Avoid bringing intensely fragrant food on board.

Also consider what it will be like to eat the food in flight. Soup has the potential to slop all over the place," says Patricia.

Keep general manners in mind as you eat. Avoid licking your fingers, as you will be touching shared surfaces.

When napping, be considerate of your neighbours;

Betty Abigaba an Asistant flight operator says there is no best way to sleep on a plane. There are however, several ways. Remember there is no passenger who enjoys sitting next to a snoring neighbor with a smelly mouth. Before you board your plane, grab some candies or chewing gums to leave your breathing fresh. Just remember: No one wants to wake up to a mouth-breathing stranger asleep on their shoulder.

Do your makeup at home;

Martha a mother of two advises that you have a lot of free time on the plane, but you don't have to fill it with the grooming you forgot to do at home. Trimming your nails or flossing can wait when you are in the comfort of your room. If you are really desperate, attend to your grooming needs in the bathroom way from the onlookers. You want to smell good, keep it off the plane for the sake of some passengers who may be allergic to your fragrance.

Wait your turn to get off the plane;

Joan Molly is an elderly woman who lives and works in Sweden, she recommends that you must laugh aloud, think of those around you. They may not be interested in your distraction perhaps they have a lot of their mind and noise is the last thing they want. You are probably feeling cramped and achy, so it's natural to want to jump up and stretch your legs. If someone is sitting in front of you, be mindful of manhandling their chair to propel yourself out of yours. Keep that stress in mind next time you are booking your trip; reserve a seat closer to the window of the plane.

Smart hacks to enjoy long haul flights

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Long haul flights can be a nightmare to travelers especially first time travelers who are not used to Long haul flights. ***Below, we have highlighted useful hacks to help you manage and cope well with long haul flights and make your journey both memorable and enjoyable.***

Stay Awake and Alert on Takeoff and Landing

It may be tempting to fall asleep as soon as you get on the plane, but you really shouldn't do that. Unfortunately, your ears cannot regulate pressure whilst the plane is going up in the air or coming back down to the landing strip at high speeds. Our suggestion? Stay awake and chew gum.

Always Bring Cash

It's so easy to make payments these days because there are tons of apps and credit cards for everything. Even so, it's key to always carry small change in dollars or euros. There are many other services you may need to pay for, such as valet so physical cash will be useful.

If you want to enjoy some in-flight snacks you'll need cash for that. Also, don't forget to withdraw some local currency at the ATM on your arrival.

Dress for the Occasion

How you dress at the airport and on the flight is very important. You might want to avoid anything too tight that could potentially squeeze you. Leave the jeans and formal shirts in your luggage even if you're traveling for business. Clothing is one of the biggest things that can make your flight comfortable so always be prepared.

Put on some soft and stretchy pants, a baggy t-shirt, a warm sweater because the air conditioning is always on and a scarf for that added warmth.
The Early Bird Catches the Flight
There's nothing worse than missing your flight so skip the traffic and get to the airport early. Although most people already know to do this, there's no harm in getting another quick reminder. How much time you need to get to the airport before boarding is still up for debate.

Some people believe that 3 hours is sufficient and others say you need even more time. Nonetheless, you have to arrive early to steer clear of any unforeseen issues such as long check-in lines or a slow parking lot trolley.
Lounge Around

If you travel often you should really consider taking advantage of the lounges at the airport. Some people use their credit cards to do so, others can enjoy the perks through great frequent flyer programs. The most popular card is the American Express Platinum card. Many airports around North America let you in for free for simply being a cardholder. You might have to pay a small fee at other lounges but the perks are worth it.

Bring on the Layers

This tip emphasizes the value of dressing comfortably for a flight. From the expert's mouth – layer up. At any given moment the climate may change and the temperature in an airplane can go from freezing to scorching hot in a matter of seconds.

That's why layering is great for travel. So stay prepared. If it gets too hot you can always use the extra layers as a pillow.
Put Your Best Foot Forward
Your shoes are just as important as the rest of your outfit. You want them to be lightweight and breathable like a cool breeze on a summer's day. Stay away from heels or tight formal shoes as you'll most likely need to hurry to your gate or through security at some point in time.
You might need to kick off your shoes once you're on the plane so you can get more comfortable, so wear a pair that isn't a hassle to take off and put back on.

Stay Away From Fizzy Drinks

Nothing refreshes like a cold Coke or any other soda for that matter, but if you're catching a long-haul flight you might want to steer clear of them. It's as simple as this; carbonated drinks make you swallow a ton of air.
This is not good for your digestive tract and the air will come out as a burp or flatulence in the end. Furthermore, when the pilot moves to different altitudes, the air could swell up and cause you pain.

It Doesn't Hurt to Ask About Seats Again

Sometimes you don't get the seat you wanted when you check in but that doesn't mean there's no hope. The check-in system might show a full flight but the agents at the gate will know if there's absolutely nothing available. Asking doesn't hurt. It could be the difference between you getting cramped and you getting an exit seat with plenty of legroom. If you're lucky you might even score yourself an empty row.
Don't Travel Without Your Kit
Long-haul flights can be exhausting so stock up on all the things that will make your trip a little more comfortable. A little luxury doesn't hurt so be sure to add your favorite things to your onboard kit. Don't forget the essentials, toothbrush, deodorant, hairbrush but also pack a sleeping mask and

earplugs.
Aromatic pillow mists are great for calming you down. Maybe even spoil yourself with a face cream.

Socks Are Essential

If there's one thing you need to have in your travel kit, it's socks. The more the merrier because you will sweat while traveling and there is nothing worse than having heavy, soggy socks weighing you down.
Bring an extra pair for good measure and put them on as soon as you get on the plane. You will feel fresh and cozy the whole trip.

Get Some Peace and Quiet

Sometimes flights can get noisy and the last thing you want to do is spend a 16-hour flight listening to a crying baby. Luckily for you, you do not have to put up with it. Pack a pair of silicone earplugs and you're good to go — you'll sleep all night.
Noise-canceling headphones are a great alternative as well, they're good for listening to your favorite music.

Back Seats Are the Best Seats

If you don't have a seat preference on a long flight we suggest booking one at the back. It can be a little noisy when the flight attendants are working but you'll get better service.
They might even offer you more things because there's a rule not to walk around with special things as there isn't enough for everyone so they'll want to get rid of it quickly.

Catch a Movie

Long-haul flights do have entertainment systems on board but you can always make your experience better by watching something on your tablet or laptop. The screen quality on flight entertainment can be horrible and this can ruin the whole movie for you.
Stock up on your favorite movies and TV shows to fully enjoy the experience. You also don't have to listen to passenger announcements that can break your focus while watching.

Podcast to Last

Worried your battery life won't last long? No need to be. Videos can consume a lot of your battery life but there's a great alternative, podcasts. They hardly use up any battery and you'll be enjoying them for hours. Download as many as you'd like to keep you busy during your flight. Keep your options open by downloading a wide variety of topics. You never know what will pique your interest on the plane.

Jog First Thing in the Morning to Avoid Jet Lag

If you're traveling internationally, you'll most likely get jet-lagged. Nobody likes it, and everyone thinks there is no escaping it but that's false. You can combat it by going for an early jog on the first morning of your trip.
Since the sun will be out, the boost of vitamin D will help your body adjust to the new schedule.

Stretch a Little

Regular stretching on a long-haul flight is extremely beneficial to your overall health. Sitting for a long period of time will do some serious damage to your spine so you want to make sure you're getting as much movement in your body as possible.
This is also good for your blood flow as the flow of blood to your limbs can be obstructed. A few basic stretches in the aisle every hour can make the world of difference. Be sure to keep it up and soon others will join you.

Source: Herald Weekly