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WORLD AIR NEWS

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A GROWING FORCE IN AVIATION SERVICES

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NAVIGATING THE SKIES OF CHANGE

This month we delve into the evolving landscape of business aviation, as it prepares to embrace a wave of technological, environmental and market-driven changes. Our Checklist image features Fireblade Aviation telling vibrant stories of the Koi San with their colourful Livery. Image©World Airnews.

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CHALLENGES AND OPPORTUNITIES IN BUSINESS AVIATION

The business aviation sector stands on the cusp of significant transformation, poised to embrace a series of technological, environmental, and market-driven changes. As the industry evolves, several key trends and developments are likely to shape its future. Here is an overview of the pivotal themes explored in this edition:

Technological Advancements

The relentless pace of technological innovation continues to redefine business aviation. Advances in fuel-efficient engines, state-of-the-art avionics systems, and the development of lighter yet stronger materials for aircraft construction are set to enhance the range, speed, and overall efficiency of business jets. These innovations not only promise to improve performance but also deliver a more cost-effective and reliable flying experience for business travelers.

Electrification and Sustainable Aviation

Sustainability is becoming a cornerstone of modern aviation, driven by environmental concerns and regulatory mandates. The transition to electrification and hybrid-electric propulsion systems is gaining momentum, offering the potential for significantly reduced emissions and lower operating costs. As these technologies mature, they are expected to play a crucial role in making business aviation more eco-friendly and sustainable.

Urban Air Mobility (UAM)

With urban congestion on the rise and technological capabilities expanding, Urban Air Mobility (UAM) solutions such as electric vertical takeoff and landing (eVTOL) aircraft are emerging as viable options for short-range urban transportation. Initially aimed at alleviating commuter traffic in densely populated areas, UAM holds the promise of integrating into the business aviation ecosystem for efficient intra-city travel. This could revolutionise how business professionals navigate urban environments, offering a faster and more flexible mode of transport.

Autonomous Flight

The journey towards fully autonomous flight continues, with significant advancements in autonomous systems paving the way for more sophisticated autopilot features. These developments aim to enhance safety and reduce pilot workload, potentially broadening the accessibility of business aviation. While full autonomy remains a longer-term goal, incremental improvements in automation are expected to make business aviation safer and more efficient.

Personalisation and Connectivity

In an era where personalised experiences and constant connectivity are paramount, business aviation is no exception. Passengers now expect seamless in-flight entertainment, robust communication systems, and enhanced cabin comfort. In response, aircraft manufacturers and operators are likely to invest heavily in technologies that cater to these demands, ensuring that the in-flight experience meets the high expectations of modern travellers.

Regulatory Changes

The regulatory landscape for business aviation is continually evolving, influencing various aspects of the industry including safety standards, airspace access, noise regulations, and emissions requirements. Staying ahead of these regulatory changes will be essential for industry stakeholders, necessitating agility and proactive adaptation to maintain compliance and operational efficiency.

Market Growth and Globalisation

Despite economic uncertainties, the demand for business aviation is projected to grow, particularly in emerging markets where economic prosperity is on the rise. As businesses expand their global reach, the need for efficient, flexible, and secure air transportation solutions will become increasingly critical. This globalisation trend is expected to drive sustained growth in the business aviation sector.

Challenges and Opportunities Post-COVID-19

The COVID-19 pandemic has left an indelible mark on the aviation industry, presenting both challenges and opportunities. The crisis underscored the value of private air travel for its safety, flexibility, and control, leading to a renewed interest in business aviation. As the world gradually recovers from the pandemic, the sector may witness a resurgence in demand, driven by the enduring need for safe and reliable travel options.

This edition delves into these transformative trends, offering insights from industry experts and stakeholders on navigating the evolving landscape of business aviation.

IMAGE COURTESY OF: Airbus

AIRBUS SETS SIGHTS ON AMBULANCE SERVICES WITH **eVTOL ADVANCEMENTS**

In a bid to expand the reach and acceptance of electric vertical-takeoff-and-landing (eVTOL) technology, Airbus is honing in on ambulance and medical services (AMS) as a key early market. Andra Steltemeier, head of commercial development for urban air mobility (UAM) at Airbus, revealed this strategic focus during discussions at the Revolution.aero conference held in London.

Airbus made waves earlier this year with the unveiling of its CityAirbus NextGen, a cutting-edge four-person eVTOL system featuring one pilot. The company is gearing up for the maiden flight of this innovative aircraft later this year, showcasing its commitment to advancing the eVTOL landscape. While Airbus aims to have a fully operational eVTOL system ready by the second half of this decade, Steltemeier emphasized that the company is prioritizing quality and safety over being the first to market.

The decision to target services like AMS aligns with industry sentiments. Nigel Leishman, Chief Commercial Officer of aircraft and helicopter lessor LCI Aviation, believes that mission-critical applications such as AMS and cargo transport present more immediate and promising commercial opportunities than passenger transport. Leishman noted, "We are interested in passengers, but it is much longer down the pathway than everybody expects."

Echoing similar sentiments, Paul-Frank Bijou, Vice President for Business Development at Germany-based eVTOL startup Lilium, emphasized the importance of servicing socially related missions to establish industry credentials and build trust among stakeholders.

While achieving the first flight milestone is crucial, Steltemeier highlighted that Airbus's main challenges in the eVTOL realm revolve around medium- and long-term factors, particularly concerning battery supply and sustainability.

The CityAirbus prototype is slated for flight testing at Airbus's Donauworth helicopter facility in Germany. Leveraging insights from previous demonstrators like Vahana and CityAirbus, Airbus expects the testing phase to inform the operational configuration of the NextGen eVTOL system. Designed for an operational range of 80 kilometers (50 miles) and a cruise speed of 75 mph, the CityAirbus NextGen represents a significant leap forward in eVTOL capabilities.

As Airbus continues to push boundaries in eVTOL technology, its strategic focus on ambulance and medical services underscores the diverse and impactful applications of this revolutionary aviation advancement.

SOUTH AFRICA'S AVIATION INDUSTRY: THE TURBULENCE OF EXPANSION AND DIVERSITY

By Leigh Kretzschmar

Aviation serves as a powerful catalyst for global progress, creating employment, facilitating trade, enabling tourism, and supporting sustainable development. However, transforming South Africa's aviation landscape is not without its challenges. Here's an insight into the turbulence and potential of this vital industry.

Having spent two years leading a private aviation company and drawing on 15 years of experience as a Chartered Accountant in commercial sectors outside aviation, I bring a fresh perspective to the table. Aviation, in my opinion, needs more diverse insights from non-aviation industries. The industry has been insular, with many professionals dedicating their entire careers to it, driven by a deep passion for flight and a commitment to the ecosystem it supports. While their expertise and dedication are crucial, true transformation requires new perspectives and skills.

The Need for Broader Perspectives

For the aviation industry to grow exponentially, it must embrace change in both people and business practices. Bringing in business knowledge and insights from a broader commercial standpoint can make processes more efficient and innovative. South African aviation, in particular, is at a crossroads where attracting diverse skills from outside the industry is essential.

Learning from Hard Knocks

The COVID-19 pandemic hit the aviation industry hard, but it also presented an opportunity for transformation. As companies regain stability, this is the ideal time to apply innovative business principles to optimise operating models. Transformation should be a strategic priority, not an afterthought. Investing in efficiency and optimization during this recovery phase makes commercial sense and lays the groundwork for long-term sustainability.

Beyond Pilots and Engineers

There is a pressing need to raise awareness about the diverse career opportunities in aviation beyond pilots and engineers. At Fireblade Aviation, only 10% of our workforce consists of pilots, highlighting the variety of roles essential for a successful aviation operation. To build a sustainable future, the industry must engage a broader talent pool, especially as international demand draws local experts abroad.

Engaging the Youth

To ensure a steady pipeline of talent, the aviation industry must engage young learners. Initiatives like job shadowing, where students experience aviation firsthand, can spark interest. Programs like the Netherlands Airport Consultants' (NACO) Girls in Aviation can inspire future generations. Additionally, promoting careers in green fuel innovation, AI, digitalization, and environmental sustainability can attract diverse talents.

Celebrating a Decade of Innovation

Fireblade Aviation, celebrates its 10th anniversary this month. Over the past decade, Fireblade has pioneered private aviation in South Africa, driving positive change within the industry and boosting domestic and international tourism and investment into Africa.

Originally the Anglo American flight department, Fireblade rebranded in 2014 to offer comprehensive services to business and leisure travelers. Fireblade Aviation, emphasizes the importance of enhancing travel efficiency to drive Africa's business case. Charter services have become more accessible, benefiting both business and leisure travel.

Driving Positive Change

I believe that the private aviation industry is overdue for transformation. "Driving positive change in our industry starts with expanding our ecosystem, prioritizing sustainability, driving inclusivity and diversity, and raising awareness about aviation careers among the youth, particularly young girls."

During its anniversary month, Fireblade Aviation launched a series of children's books to ignite enthusiasm for aviation among young children, particularly girls. These efforts aim to inspire a broader range of people to consider careers in aviation.

The Path Forward

Aviation is a key enabler of connectivity, essential for economic growth and global progress. Fireblade Aviation is committed to addressing skills shortages, promoting diversity and inclusion, and driving economic growth. Creating a more inclusive and diverse workforce is not only the right thing to do but also beneficial for business.

As Fireblade Aviation celebrates its first decade, its focus remains on boosting South African tourism, fuelling business travel into Africa, and bolstering local aviation. The journey ahead is about building a sustainable future through transformation, inclusivity, and innovation.

Leigh Kretzschmar, MD at Fireblade Aviation

ABOUT FIREBLADE AVIATION

Since its rebranding in 2014, Fireblade Aviation has established itself as a world-class private aviation business. Located at OR Tambo International Airport in Johannesburg, Fireblade provides a full suite of Fixed Base Operator (FBO), Maintenance, Repair, and Overhaul (MRO), and Air Operator Certificate (AOC) facilities and services. The company is dedicated to delivering exceptional guest experiences and maintaining high standards in technical expertise for private aircraft.

SOUTH AFRICAN ELECTRONICS IN AIRCRAFT SELF-PROTECTION

Etion Create, an electronics subsidiary of South Africa's Reunert Applied Electronics, has reached an important milestone in the defence arena.

Its VF370 3U OpenVPX Single Board Computer (SBC) module has recently been selected by global defence company Saab for their Integrated Defensive Aids Suite, the IDAS-310 that was launched last year.

This embedded product is a critical component in Electronic Warfare (EW) Self- Protection Systems (EWSPS) used in airborne platforms like helicopters, fighter jets and other fixed wing aircraft.

What is EW self-protection?

Spectators at air shows are often in thrall of the bright flares suddenly shooting out from underneath display aircraft flying overhead.

In air combat or ground attack operations, those flares are dispensed automatically or manually to defeat the enemy's heat-seeking missiles that could bring down the aircraft.

However, flares are but one of the elements of EWSPS. Saab's IDAS-310 provides for radar and laser warning functions, as well as a missile approach function, in addition to the countermeasures function.

It is evident that an enemy would detect an aircraft and track its range and direction by means of radar.

To bring it down, the enemy could employ a laser to illuminate the target for their missiles or ground-based air defence systems. As the missiles, launched from the opposing aircraft or ground installations, are closing in on the aircraft, the missile approach warning function alerts the pilot of the threat. This is done by means of a visual threat display and control unit (TDCU) or the aircraft's multi-function display (MFD), as well as audio signals.

The countermeasures dispensing function in the electronic warfare controller (EWC) then automatically fires (dispenses) the chaff and flares to defeat the threat. Semi-automatic or manual dispensing is also possible, because the threat library in IDAS-310 system allows for the EWC's dispensing techniques to be uploaded before flight.

Etion Create's embedded products

According to Tobie van Loggerenberg Etion Create is well-established as a South African original design manufacturer (ODM).

"Under our previous name Parsec, we created a long-standing international reach with a professional portfolio of technology offerings," he explained. "It is testament to our design and manufacturing capability that the VF370 module has been selected by Saab for their IDAS-310."

"It has been many years in the making, but Etion Create's embedded products like our VF370 3U OpenVPX SBC and the widely used CM120 COM Express Type 10 module, both Intel powered, are proving their mettle," said Tobie van Loggerenberg.

Etion Create's experience runs across a wide range of business sectors, from defence and aerospace to industrial, mining, information security and the rail transport sector.

A pair of SAAF Rooivalk helicopters firing flares.
PHOTO CREDIT: SAM BASCH

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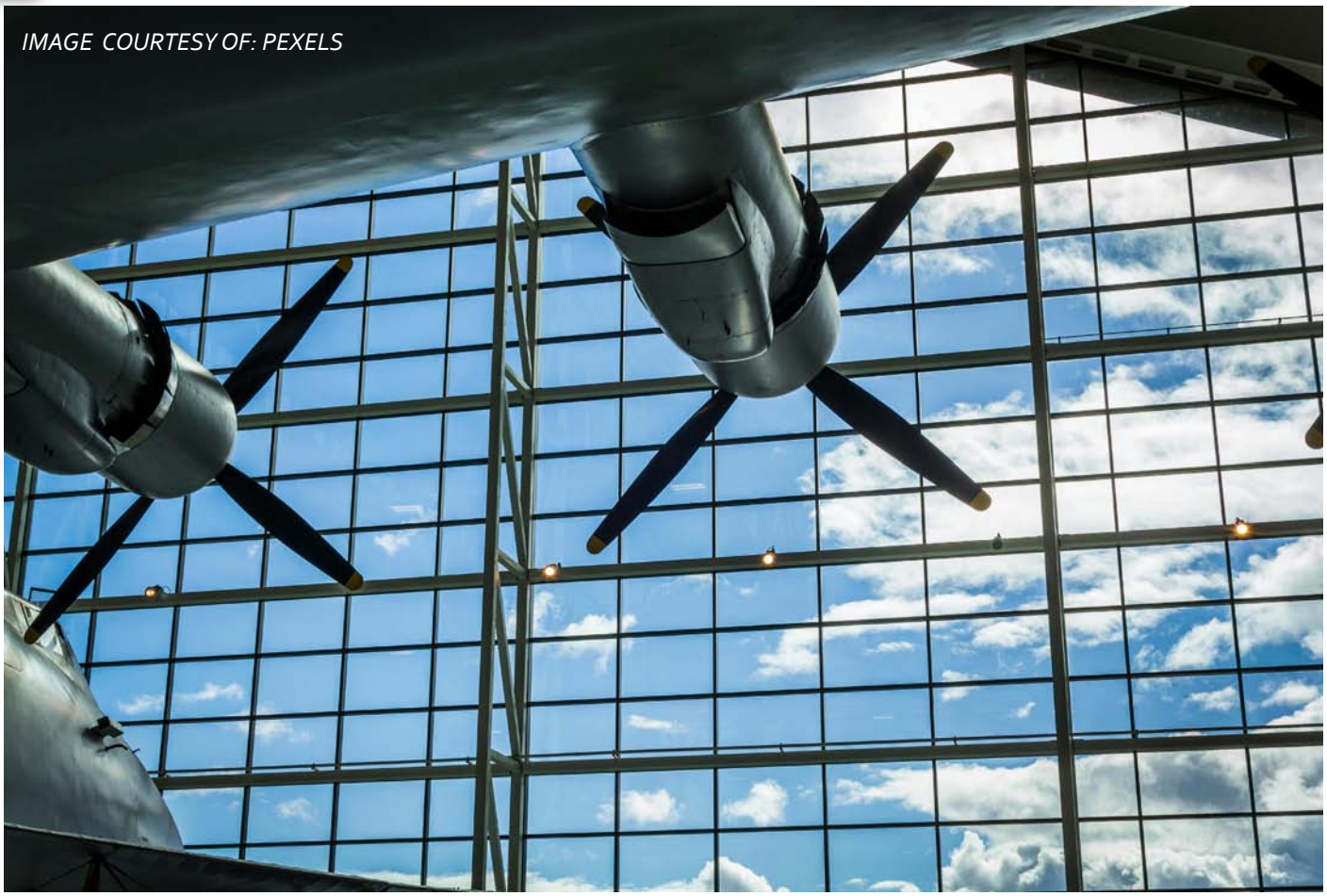
IMAGE COURTESY OF: PEXELS

FIXED BASE OPERATORS: A GROWING FORCE IN AVIATION SERVICES

The fixed base operators (FBO) industry is poised for significant growth, with the global market projected to soar from USD 23.54 billion in 2023 to approximately USD 66.61 billion by 2032, driven by a compound annual growth rate (CAGR) of 12.25%. This impressive expansion underscores the vital role FBOs play in the aviation ecosystem, providing essential services that keep private, general, and commercial aviation running smoothly.

Overview of the Fixed Base Operators Market

FBOs are integral to the aviation industry, offering a range of services including air navigation, fuelling, hangar space, aircraft rental, maintenance, and flying instruction. These operators typically function within the boundaries of public airports, leased airport spaces, or specific properties designated for aviation services. In smaller airports and remote areas, municipal bodies often manage FBO functions, ensuring that essential services are available even in less trafficked regions.

Key Market Insights

According to industry analysts, the FBO market is set to experience robust annual growth of around 12.25% from 2024 to 2032. In 2023, the market's value stood at USD 23.54 billion, with projections indicating a leap to USD 66.61 billion by 2032. This growth is fuelled by several key factors:

- **Aviation Industry Boom**: The global aviation sector is expanding rapidly. Increased wealth, a growing middle class in emerging economies, and improved connectivity are driving higher demand for air travel. The International Civil Aviation Organization (ICAO) predicts a 4.3% annual increase in air travel demand over the next two decades.
- **Economic Impact:** By 2036, the aviation industry could directly employ 15.5 million people and contribute USD 1.5 trillion to the global GDP. When including the broader impacts of international tourism, these figures could rise to 97.8 million jobs and USD 5.7 trillion in GDP, demonstrating the sector's significant economic influence.

Market Drivers and Restraints

Growth Drivers: **Aviation Sector Expansion**: The continuous growth in air travel, for both leisure and business, boosts demand for FBO services. This trend is particularly pronounced in regions with burgeoning middle classes and increasing economic activity.

Market Restraints

- **High Capital Requirements**: Establishing and maintaining FBO facilities requires substantial investment. The cost of hangars, equipment, staff, and infrastructure can be prohibitive, particularly for new entrants.
- **Regulatory Compliance**: FBOs must adhere to stringent aviation regulations and safety standards, adding to operational costs. This compliance is necessary to maintain certification and ensure safety, but it can be challenging, especially for smaller operators.

Opportunities and Challenges

- **Opportunities: Strategic Partnerships:** Collaborations and alliances present significant growth opportunities. For instance, the strategic alliance between Geneva ExecuJet and Germany's Kurz Aviation Service, announced at the European Business Aviation Convention & Exhibition in 2023, highlights the potential for FBO market expansion through partnerships.
- **Challenges: Environmental Regulations:** Increasing environmental awareness and regulatory measures to reduce aviation emissions pose challenges. FBOs must invest in eco-friendly practices and technologies, adding to their operational costs and complexity.

Market Segmentation

By Product Type:

- **Fueling:** Expected to capture the largest market share due to the continuous need for aircraft fuel and associated loyalty programs.
- Flight Instruction, Hangaring, Tie-down, and Parking, Aircraft Maintenance: ** These segments also play crucial roles in the FBO market.

By Application:

- **General Aviation:** Dominates the market, driven by increased business, leisure, and private aviation activities that generate demand for FBO services.
- **Private Aviation:** Continues to be a significant segment, catering to the needs of private aircraft owners and operators.

Regional Insights

- **North America: – Market Leader:** With its extensive general aviation market, North America is expected to dominate the FBO industry. The region's robust corporate flight departments, charter operators, and private aircraft ownership drive high demand for FBO services.
- **M&A Activity:** Recent mergers and acquisitions, such as Signature Aviation's acquisition of TAC Air's FBO units, are reshaping the competitive landscape.
- **Asia Pacific:- Rapid Growth**: The Asia Pacific region is set to grow rapidly, driven by economic expansion, increased business ventures, and rising tourism. This growth translates into higher demand for general and private aviation services, boosting the need for FBO facilities.

Competitive Landscape

The global FBO market features key players such as Dassault Aviation, Qantas Airways Limited, Jetex, Paragon Aviation Group, and Signature Flight Support.

These companies are investing in expanding their services and geographic reach to capitalise on the growing market demand.

The fixed base operators industry is on a trajectory of significant growth, driven by the expanding global aviation sector and increasing demand for comprehensive aviation services. While high capital requirements and regulatory compliance pose challenges, strategic partnerships and investments in eco-friendly practices offer substantial opportunities for market players. As North America leads the market and Asia Pacific emerges as a high-growth region, the future looks promising for FBOs worldwide.

SOURCE: https://www.zionmarketresearch.com/

REPORT IMAGE CREDIT: Zion Market Research.

Report Attributes	Report Details
Report Name	Fixed Base Operators Market
Market Size in 2023	USD 23.54 Billion
Market Forecast in 2032	USD 66.61 Billion
Growth Rate	CAGR of 12.25%
Number of Pages	220
Key Companies Covered	Dassault Aviation, Qantas Airways Limited ABN, Jetex, Paragon Aviation Group, Hawker Pacific, Wira-FBO, TAG Farnborough, Airflite International, Signature Flight Support, Monadnock Aviation Inc., Atlantic Aviation Services Inc., AFM Aviasi, and others.
Segments Covered	By Product Type, By Application, and By Region
Regions Covered	North America, Europe, Asia Pacific (APAC), Latin America, Middle East, and Africa (MEA)
Base Year	2023
Historical Year	2018 to 2022
Forecast Year	2024 - 2032
Customization Scope	Avail customized purchase options to meet your exact research needs. Request For Customization

AIR SEYCHELLES PARTNERS WITH EXECUJET FOR VIP FBO SERVICES

Air Seychelles announced a strategic partnership with ExecuJet, a leading global business aviation company, to provide exclusive VIP Fixed-Base Operator (FBO) services in the Seychelles. This FBO is the only registered and licensed facility on the island, designed to cater to the needs of discerning travellers.

Enhancing the VIP Travel Experience

The partnership aims to elevate the travel experience for VIP clients, ensuring a seamless and luxurious journey from arrival to departure. The FBO at Seychelles International Airport (FSIA) offers a variety of premium services, including:

- VIP Passenger Handling: Personalized and discreet services ensuring maximum comfort and efficiency. This includes flight planning, permit assistance, and airside transfers to and from the aircraft, prioritising privacy and convenience.
- Luxurious Lounge Facilities: Comfortable and private lounge areas for both relaxation and business needs.
- Customs and Immigration: On-site facilities for swift and efficient processing.
- Ground Transportation: A privately owned and operated fleet of VIP chauffeur vehicles for luxury transportation.
- Ground Equipment: A comprehensive array of privately owned Ground Support Equipment to meet all aircraft needs.
- Concierge Services: Tailored services to meet individual requirements, from hotel bookings to special requests.

Air Seychelles Chief Commercial Officer, Charles Johnson, expressed enthusiasm about the partnership: "We are thrilled to partner with ExecuJet to bring world-class FBO services to our VIP clientele. This collaboration underscores our commitment to providing exceptional travel experiences and reinforces our position as a leading carrier in the region."

Gavin Kiggen, Vice President Africa at ExecuJet, added, "Our partnership with Air Seychelles is a testament to our dedication to excellence in aviation services. We look forward to delivering unmatched FBO services that cater to the needs of high-profile travellers visiting the Seychelles."

Luxaviation Group CEO, Patrick Hansen, shared his excitement: "We are extremely happy to have entered this partnership with Air Seychelles. I want to thank both teams for their continued efforts that led to this agreement, which will undoubtedly be a milestone for our development in the region and the expansion of our global FBO network."

Expanding the Global FBO Network

The Air Seychelles VIP FBO joins ExecuJet's network of African facilities, which includes Lanseria and Cape Town International airports in South Africa and Murtala Muhammed International Airport in Lagos, Nigeria. This new facility brings ExecuJet's total number of FBOs to over 140 worldwide, including recent acquisitions of Sky Valet and Paragon Aviation Group FBOs.

With this partnership, Air Seychelles and ExecuJet aim to set new standards in luxury travel, ensuring every journey to and from the Seychelles is a memorable and exclusive experience.

For more information about the services offered, please visit the Air Seychelles and ExecuJet websites.

IMAGE COURTESY OF: ExecuJet. *Chief Commercial Officer, Charles Johnson with Vise President Africa Gavin Kigen*

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EMBRAER C-390 MILLENNIUM
THE BEST AIRLIFT SOLUTION FOR SOUTH AFRICA

Embraer showcased its C-390 Millennium airlifter to the South African Air Force (SAAF) in November last year and continues to market the aircraft to South Africa for military, disaster relief, and other humanitarian missions.

In April, Embraer officials held a successful meeting with the South African National Disaster Management Centre (NDMC), promoting the C-390 as a strategic national asset suitable for various government departments' tasks, including firefighting and humanitarian airlift. Paballo Motoboli, Director of Sales and Business Development at Embraer Defence and Security, was among the representatives engaging with the NDMC, including its Head, Dr Bongani Elias Sithole.

Recent flooding in KwaZulu-Natal and the Western Cape has underscored the need for effective disaster response as climate change intensifies the frequency and severity of such events. In early June, a tornado in KwaZulu-Natal killed eleven people and displaced thousands, following the devastating 2022 floods that left over 400 dead and 40,000 displaced. Additionally, South Africa faces significant threats from fires during the summer, with over 6,000 fires affecting 100,000 hectares between December 2023 and January 2024.

In May 2024, the Department of Defence and the Department of Cooperative Governance and Traditional Affairs (CoGTA) signed an agreement to collaborate on disaster management, with the SA Forces Institute (SAFI) overseeing emergency strategic reserves and procurement during disasters.

The SA National Defence Force (SANDF) is committed to disaster support and humanitarian assistance through its standing operation, Chariot, managed by its Joint Operations Division.

Embraer highlights the C-390's design to meet the challenges of flexible and efficient airlift, arousing global interest from nations seeking a capable, multi-mission military transport requiring minimal ground support. Countries such as Portugal, Hungary, the Netherlands, Austria, the Czech Republic, and South Korea have already selected the C-390 Millennium to meet their military transport needs.

The C-390's multi-mission capability and interoperability make it a broader national strategic asset, serving various government departments beyond military use. In South Africa, the aircraft could

NDMC Head Bongani Sithole

be utilised for maritime surveillance, firefighting, flood relief, medical evacuation, and other non-military tasks, alongside traditional military airlift roles.

The C-390's versatility was proven during the COVID-19 pandemic in Brazil, where it transported ambulances and medical equipment and responded to floods by delivering relief donations. This multi-mission capability makes it an ideal solution for African nations, including South Africa, where it can perform tasks such as medical evacuation, search and rescue, aerial refuelling, and humanitarian assistance.

The C-390 can operate on temporary or unpaved runways, such as dirt and gravel, thanks to its high-mounted engines that prevent debris ingestion. Since its delivery to the Brazilian Air Force in 2019, the C-390 has successfully operated in extreme weather conditions, demonstrating its suitability for Africa's diverse and challenging environments.

Embraer points to the solid track record of the C-390, with the Brazilian Air Force's fleet accumulating over 12,000 flight hours and maintaining an operational availability of around 80% and a mission completion rate above 99%. The C-390 can carry more payload compared

to other medium-lift military cargo aircraft, flying faster and farther, making it both a strategic asset and a tactical airlift with agility and precision.

The C-390's modern design, using digital manufacturing techniques, fly-by-wire technology, and efficient turbofan propulsion, ensures high efficiency and performance, leading to reduced life cycle costs and greater availability. For African nations, which often face fleet downtime, the C-390's reliability and efficiency are crucial.

During the C-390's visit to South Africa in November, Chief of the SANDF, General Rudzani Maphwanya, highlighted the need for modern aircraft to replace the ageing fleet, indicating thorough research on acquiring future-oriented heavy and medium transport aircraft.

Embraer is optimistic about global C-390 sales, particularly as military transport fleets age. The aircraft's capability as an air-to-air refuelling tanker (KC-390) adds to its appeal, with the KC-390 capable of refuelling both fixed and rotary-wing aircraft.

Embraer is quickly accumulating new sales, with the latest customer being South Korea, which selected the KC-390 in December 2023. Austria also announced its decision to acquire the C-390 to replace its C-130K Hercules fleet. The Netherlands, Brazil, Hungary, and Portugal are other existing customers, with several nations showing interest.

For South Africa, the C-390 Millennium presents a robust solution for military and humanitarian needs, offering strategic and tactical airlift capabilities, efficient manufacturing and maintenance, and versatile multi-mission functionality, making it a compelling choice for the 21st century.

SOURCE:Original Article: Partner Content , Defence Web
IMAGES COURTESY OF: Embraer

SKYDWELLER AERO'S BREAKTHROUGH IN AUTONOMOUS FLIGHT TECHNOLOGY

IMAGE COURTESY OF: Skydweller Aero

U.S.-based scaleup Skydweller Aero, has achieved a significant milestone in the aerospace industry with its development of autonomous flight technology. This groundbreaking technology, powered by solar energy, enables perpetual flight and autonomous waypoint navigation, paving the way for a new era in aerial operations.

The autonomous flight system, driven by advanced artificial intelligence, allows Skydweller aircraft to navigate autonomously through predetermined waypoints, executing precise manoeuvres without human intervention. Equipped with advanced climate and data analysis modules, these aircraft can operate effectively in diverse weather conditions, making them versatile assets for various applications, including telecommunication, geospatial analysis, and emergency response scenarios.

Recently, Skydweller Aero made headlines with the world's first successful autonomous flight of a large solar-powered aircraft. The aircraft, boasting a wingspan greater than a 747 and leaving zero carbon footprint, completed a flawless takeoff, flight, and landing at Stennis International Airport in the United States without a human on board or in control.

"This is a true, world-changing first in the aerospace industry, our fleet of uncrewed aircraft will enable a multitude of long-duration missions that support national security and non-terrestrial communications with revolutionary cost savings." remarked Robert Miller, CEO of Skydweller Aero.

The versatility of Skydweller aircraft is evident in their potential applications. They can be deployed for long-duration missions such as continuous aerial coverage above conflict zones, surveillance of naval activities in contested waters, detection of illegal activities like drug smuggling and piracy at sea, and monitoring wildlife migration and combating poaching in regions like Africa.

Senator Roger Wicker, ranking member of the U.S. Senate Armed Services Committee, lauded Skydweller's advancements in national security and protection measures. "This really is a first when it comes to national security and protecting Americans," he stated, underscoring the significance of autonomous aircraft in enhancing mission capabilities while minimizing risks to human personnel.

The capabilities of Skydweller aircraft extend beyond their autonomous flight and mission versatility. These solar-powered marvels can achieve perpetual flight, staying aloft for 90 days or more at altitudes of up to 45,000 feet. This endurance far surpasses that of current combustion-powered aircraft, offering a cost-effective and environmentally friendly solution for long-duration missions.

"We are applying cutting-edge, 21st-century technologies to revolutionize the aerospace industry," Miller continued. "Skydweller's autonomous capabilities, coupled with minimal operating personnel, make it 10 to 100 times less expensive to operate than conventional aircraft for long-duration missions."

Skydweller Aero Inc. stands as a pioneering transatlantic aerospace company, developing and manufacturing a fleet of very large solar-powered aircraft solutions capable of achieving perpetual flight with heavy payloads. With flexible payload systems and advanced communication capabilities, Skydweller aircraft are set to enhance commercial and government operations worldwide while reducing environmental impact.

As Skydweller Aero continues to push boundaries in autonomous flight technology, its achievements mark a significant step towards a more efficient, cost-effective, and sustainable future in aviation. For more information about Skydweller, visit www.skydweller.aero.

AI ON AVIATION ASCENT PATH

Since the launch of ChatGPT in November 2022, Artificial Intelligence (AI) has dominated conversations across various industries. However, its applications in aviation – an industry known for its cautious and safety-conscious nature – go beyond the generative AI and large language models (LLMs) that have captured public attention. AI's potential in aviation maintenance is vast, promising to enhance efficiency and productivity without compromising safety standards.

Information Surfacing for Decision Support

A foundational principle in aviation is that trained individuals are responsible for decisions, under appropriate authority and licensing. AI can support this principle by surfacing information or identifying options for decision-makers, thereby accelerating research and reducing non-useful options. This approach ensures that humans remain integral to the decision-making process, leveraging AI to enhance their efficiency.

Explainable AI for Responsible Decision-Making

The use of AI in aviation also necessitates transparency and accountability, especially in compliance with OEM and regulatory requirements. Explainable AI provides the tools to understand and justify the predictions made by AI models. This transparency is crucial for regulators and helps improve model accuracy and performance, fostering trust and enabling broader AI adoption in aviation.

Currently, there are four key practical applications of AI in aviation maintenance:

1. Maintenance Scheduling & Supply Chain Optimization. AI-driven optimization models can run countless scenarios to determine the best possible maintenance schedules, minimizing downtime and maximizing aircraft availability. By optimising the order of tasks and personnel assignments during maintenance visits, airlines can reduce costs and improve turnaround times. Additionally, AI can optimise the maintenance supply chain, ensuring that necessary parts are available precisely when needed, further reducing delays.
2. Error Detection & Reclassification
   AI can identify and correct errors in data entry, enhancing data accuracy and quality. Misclassification of faults is a common issue in aviation, often caused by human error. AI models can learn to recognise patterns in technician-entered data, improving fault classification accuracy. By surfacing potential errors to reliability engineers, AI streamlines the process while maintaining human oversight.
3. Automated Failure, Troubleshooting, and Repair Identification.
   When a fault occurs, AI can assist technicians by suggesting potential failure sources, troubleshooting steps, and repair actions based on historical success rates. This approach helps technicians make more informed decisions quickly, potentially increasing first-time fix rates and reducing aircraft downtime.
4. Predictive Maintenance & Anomaly Detection
   Predictive maintenance, enhanced by AI, uses time-series data to anticipate and prevent failures. AI models, particularly those employing unsupervised learning, can analyse vast amounts of sensor data to establish normal patterns and detect anomalies. This early warning system alerts operators to deviations, allowing for proactive maintenance and reducing the risk of unexpected failures.

The AI Future in Aviation

AI must be deployed carefully, especially in aviation, where safety is paramount. By enhancing human decision-making and maintaining human oversight, AI can significantly improve efficiency and accuracy in aviation maintenance. These advancements offer substantial value to airlines and their customers, positioning early adopters at a competitive advantage.

It is not just a futuristic concept but a present-day reality with transformative potential. As AI continues to integrate into aviation, its responsible and transparent use will be crucial for maximizing its benefits while ensuring safety and compliance. The aviation industry stands on the cusp of an AI-driven transformation, promising unprecedented gains in efficiency and reliability.

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SIMUFLIGHT LEADING THE WAY IN AVIATION TRAINING AND SIMULATOR TECHNOLOGY

Since its inception in 2003, Simuflight has emerged as a pioneering force in aviation training, significantly contributing to flight standards and safety in Southern Africa and beyond. Founded to demonstrate the value of simulators developed by its sister company Aviamech, Simuflight has evolved into a preferred flight deck crew training facility, approved by both South African and international Civil Aviation Authorities. With a commitment to making the region more self-sufficient in aviation training and safety, Simuflight has overcome early industry scepticism and established itself as a local producer of high-quality simulators that rival international imports.

Comprehensive Training Programs

Simuflight offers an array of tailored training programs for the Beechcraft King Air 1900, 200, and Cessna Caravan C208, including Initial Type Ratings, Differences Training, Type Recurrent Training, Pilot Proficiency Checks, and more. These programs integrate ground school, simulator training, and in-flight experience into a seamless, one-stop solution from their state-of-the-art facility in Midrand. The training standards are maintained at airline levels through rigorous training materials and a multi-crew training environment led by experienced instructors.

Cutting-Edge Simulator Technology

As a simulator manufacturer, Aviamech develops a range of high-fidelity simulation devices for various aircraft types, including Piper Seneca, King Air, Cessna F406/C425 and C208, Vulcanair and more. Unique features

of these simulators include type-specific flight decks, accurate flight models, and a visual system offering a 250-degree continuous horizontal field of view. Recent technological advancements like the emulated high-fidelity Garmin G1000NXi suite further enhance the training experience by providing pilots with realistic and comprehensive flight scenarios.

International Recognition And Compliance

Holding approvals from multiple Civil Aviation Authorities, Simuflight attracts a diverse international clientele, including pilots from Africa, Europe, and beyond. Compliance with various international regulations is maintained through rigorous auditing processes and adherence to global best practices. This international recognition allows Simuflight to extend its training services to a wider audience, enhancing flight safety standards across multiple regions.

Commitment To Flight Safety

Simuflight's dedication to flight safety is evident in its training philosophy, which emphasizes standard operating procedures and airline safety standards. By providing advanced training to pilots from regions with limited access to such resources, Simuflight contributes to the overall improvement of flight safety in Africa. The institution's Multi-Crew Cooperation (MCC) program equips pilots with essential skills for corporate, contract, or airline careers.

Fear-Of-Flight Course

Responding to public demand, Simuflight offers a fear-of-flight course designed to help individuals overcome their anxiety about flying. Feedback from participants indicates that while the course is beneficial, ongoing personal effort is required to manage flight-related anxiety effectively.

Engineering And Manufacturing Excellence

Aviamech's in-house engineering capabilities encompass mechanical, aeronautical, electronic, and computer engineering, enabling the design, development, and manufacture of advanced flight simulators. Using CAD-CAM based design processes, Simuflight ensures high-quality and efficient production, from initial concept to finished product. Their extensive range of simulators includes the only type-specific Bell 222 helicopter simulator in the world and the forthcoming Pilatus PC12 simulator, set to enhance training for PC12 operators across Africa.

Future Expansion And Innovations

Looking ahead, Simuflight plans to expand its training offerings and simulator technology, including the addition of the Pilatus PC12 simulator in 2025. The company also has exciting plans for the drone training segment, promising innovative developments that will benefit the broader aviation industry.

Industry Impact And Global Reach

With over two decades of experience, Simuflight has played a significant role in shaping aviation training and safety standards in South Africa and beyond. Their simulators have logged approximately 35,000 hours, training thousands of pilots who now occupy key positions in the aviation industry. By maintaining strategic partnerships and offering comprehensive support services, Simuflight ensures a seamless and enriching training experience for its international students.

Accommodations And Logistics Support

To enhance the training experience, Simuflight assists trainees with accommodation and transportation needs, offering guidance on preferred lodges and transport providers. They also provide lunches for all students and accommodate international trainees with visa assistance and flexible training schedules to meet travel deadlines.

Through continuous innovation and a steadfast commitment to excellence, Simuflight remains at the forefront of aviation training, contributing significantly to the professional development and safety standards of the aviation industry in Africa and beyond.

PAVING THE WAY FOR DIVERSITY IN THE INDUSTRY

Aviation Development Africa, a non-profit organisation spearheaded by young black professionals in the aviation sector, is committed to transforming the industry. Born out of a need to address the imbalances left by apartheid, this group is dedicated to creating opportunities for black individuals in aviation, a field where they are sorely underrepresented.

Despite making up a significant portion of the South African population, black people constitute only 4% of the country's 17,200 pilots, with black women representing less than 2%. This disparity extends across various aviation professions, highlighting the urgent need for initiatives like Aviation Development Africa.

Transformative Initiatives

The organisation partners with provincial education departments and leverages government platforms such as the Science Engagement Strategy and MST-grant schools to promote aviation careers. Through awareness programs, role models, exhibitions, aviation clubs, and support for black aviation students, Aviation Development Africa is making significant strides towards a more inclusive industry.

The National Development Plan (NDP) supports their mission by advocating for high-quality education in languages, science, and technology for all learners, regardless of background. By bringing the aviation industry closer to the people, particularly in underprivileged communities, Aviation Development Africa is playing a pivotal role in transforming the sector.

Inspiring the Next Generation

One of the organisation's standout initiatives is its annual aviation expo, #EveryBarHasAStory, one of South Africa's largest aviation career expos. This event, which attracts over 3,000 attendees, including 1,500 learners from various schools, provides a platform for aspiring aviators to interact with industry professionals.

Through hands-on experiences and mentorship from student pilots, qualified pilots, aircraft mechanics, air traffic controllers, and other aviation professionals, young people are inspired and motivated to pursue careers in aviation.

A Clear Mission and Strong Values

Aviation Development Africa's mission is clear: to see an equal representation of all races and genders in aviation careers, breaking the stereotype of a white male-dominated industry. Their core values of passion, integrity, sharing, hard work, human-capital development, building, and resourcefulness drive their efforts.

Expanding Horizons

The organization's annual #EveryBarHasAStory event not only educates but also motivates and inspires future aviators. Held in various provinces across South Africa, and with plans to expand internationally, this event showcases the possibilities within the aviation industry to learners from over 50 schools.

Acknowledging Support

Aviation Development Africa extends its gratitude to its sponsors and partners for making aviation careers accessible to children from rural areas. Through these collaborations, the organization is ensuring that the next generation of aviators reflects the diversity of South Africa.

By addressing the triple challenge of inequality, poverty, and unemployment, Aviation Development Africa is not just transforming the aviation sector, but also contributing to a sustainable socio-economic future for the country.

GET IN TOUCH

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AFRICAN ROUTES REMAIN UNSERVED

Direct flights to, from, and within Africa are lacking, with several key routes still unserved. Airbus Market Intelligence and Consulting Director Geert Lemaire highlighted these issues during the AviaDev Conference in Windhoek, Namibia.

Lemaire cited Airbus's report, "Exploring the Horizons: A Study of Unserved Air Routes to, from, and within Africa," and identified several reasons for these gaps, including restrictive bilateral air service agreements, economic variables, and challenges in capacity, frequency, and operating cost-efficiency.

Of the 15 "Top Tier" unserved direct routes to and from, or within Africa, 11 had previously offered direct flights, with four still operating until 2022. Ten of these routes were intercontinental, and five were international routes within Africa.

Johannesburg-Mumbai

The last direct flights from South Africa to India were operated by South African Airways (SAA) and discontinued in 2015. According to Acsa's Acting Group Manager for Traffic Development, Mpho Rambau, there is no non-stop service available between Southern Africa and India. Yet, the Johannesburg-Mumbai route sees substantial origin and destination (O&D) traffic levels, surpassing many existing non-stop services to and from Africa. Major airlines like Ethiopian Airlines, Kenya Airways, Emirates, Qatar Airways, and Etihad Airways capture the majority of this traffic, with significant detours. Only 4% of the Johannesburg-Mumbai traffic opts for British Airways or Virgin Atlantic via London, which is over twice the distance of a direct flight. Projections for 2026 suggest that the route could sustain six weekly flights with a 250-seat widebody aircraft.

Cape Town-Brussels

Between 2019 and 2023, Cape Town-Brussels O&D traffic accounted for 48% of South Africa's traffic to Brussels, with Johannesburg-Brussels making up 45%. Post-pandemic recovery has seen traffic levels surpassing pre-pandemic figures by more than 30%. This demand is driven by the presence of approximately 200 Belgian companies in South Africa and an estimated 10,000 Belgian immigrants since 2020. The primary transit hub for this route is Johannesburg, with Air Belgium having served most of the traffic until November 2023. Predictions for 2026 traffic support the use of four weekly 250-seat widebody flights.

Durban-London

British Airways served the Durban-London route three times weekly from the end of 2018 until early 2020, when it was discontinued due to the pandemic. The route stimulated average monthly passenger traffic of 8,200 O&D, a 30% increase from the previous year. Current primary transit hubs include Dubai, Johannesburg, and Doha, with Emirates and Qatar Airways offering connections. Airbus's report suggests considerable detours via Middle Eastern hubs compared to shorter routes through Johannesburg or Cape Town.

Cape Town-Lagos

Airbus identified the strategic importance of Cape Town-Lagos flights for economic and tourism development, noting their potential to enhance international connection. Historical data showed a decline in traffic between South Africa and Nigeria at a rate of about 7.3% per year from 2015 to 2019. There is room for both Cape Town-Lagos and Johannesburg-Lagos flights.

Unserved Routes

The top five unserved intra-African air routes include Dakar-Libreville, Abidjan-Douala, Abuja-Nairobi, Cape Town-Lagos, and Dakar-Douala. The top ten unserved intercontinental routes are Harare-London, Johannesburg-Mumbai, Lagos-New York, Lagos-Toronto, Entebbe-London, Lagos-Manchester, Cape Town-Brussels, Durban-London, Nairobi-Washington DC, and Lagos-Houston.

Addressing these unserved routes requires overcoming regulatory, economic, and operational challenges. This could enhance connectivity, economic growth, and tourism across the African continent.

TURBOPROP MAEVE AEROSPACE UNVEILS GAME-CHANGING SUSTAINABLE 80-SEATER AIRCRAFT

Maeve Aerospace, a prominent European aircraft developer, is set to disrupt the aviation industry with the introduction of its new hybrid-electric 80-seater aircraft. The company announced its expansion to Oberpfaffenhofen Airport in Munich, signaling a significant step forward in accelerating work on this groundbreaking program. The aircraft, named the M80, is poised to transform the regional aviation market by offering jet-like performance combined with turbo-prop efficiency.

A Decarbonized Future

At the heart of Maeve Aerospace's vision is a commitment to sustainability and energy efficiency.

The M80 represents a game-changing combination of regional jet performance and turbo-prop economics, addressing the critical challenge of decarbonising aviation while ensuring cost-effectiveness and industry adoption.

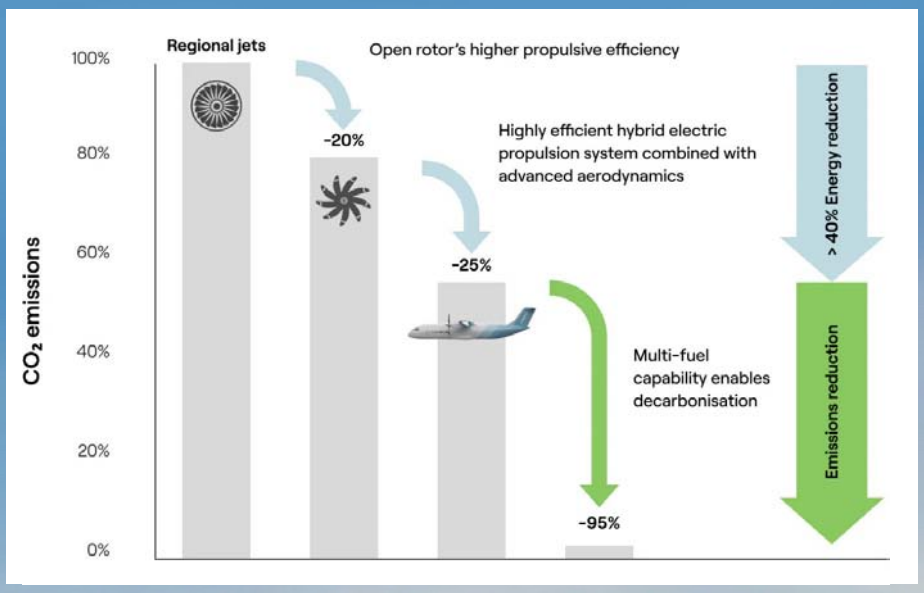
Martin Nuesseler, the Chief Technology Officer of Maeve Aerospace, emphasized the uniqueness of the M80, stating, "To my knowledge, there are currently no alternatives in development that are equally sustainable, cost-effective, and match the operational needs of airlines and airports."

Unrivaled Efficiency

The M80 is designed to offer an operational range of 800 nautical miles (1482 km) with a 40% higher energy efficiency compared to existing aircraft. This efficiency is achieved through an aerodynamically optimized clean sheet design and an integrated hybrid propulsion system. By leveraging altitude-optimised thermal processes and electric hybridisation, Maeve Aerospace has succeeded in significantly reducing mission energy and fuel consumption.

Accelerating Innovation in Germany

Recognising the need for top talent and rapid organisational growth, Maeve Aerospace has expanded its operations to Oberpfaffenhofen Airport near Munich, Germany. This strategic move not only brings together industry experts but also taps into a hub of innovation, fostering collaboration and driving forward cutting-edge aircraft design.



About Maeve Aerospace

Maeve Aerospace, founded in 2021, is at the forefront of sustainable and economic aircraft design in Europe. With a mission to reduce over 50 metric tonnes of CO2 emissions before 2040, Maeve is committed to launching a globally competitive aircraft family that prioritises energy efficiency and is compatible with existing airport infrastructure.

Led by CTO Martin Nuesseler and supported by private investors, the Government of the Netherlands, and the European Investment Council (EIC), Maeve Aerospace is poised to reshape the aviation landscape with its innovative approach to sustainable air travel.

IMAGES COURTESY OF: Maeve Aerospace

SYNHELION AND PILATUS LAUNCH STRATEGIC PARTNERSHIP TO SCALE **SOLAR FUELS**

In a significant stride towards sustainable aviation, Synhelion and Pilatus Aircraft Ltd have formed a strategic partnership to accelerate the adoption of solar fuels in the industry. This collaboration not only aims to incorporate Synhelion's cutting-edge solar fuel technology into Pilatus' operations but also extends the opportunity for Pilatus customers to utilize these eco-friendly fuels. By joining forces, the two companies are poised to make a profound impact on the aviation sector's environmental footprint, setting new standards for sustainability and innovation.

In a groundbreaking move towards sustainable aviation, Synhelion and Pilatus Aircraft Ltd have announced a strategic partnership aimed at accelerating the adoption of solar fuels in the aviation sector. The partnership will see the Swiss aircraft manufacturer leveraging Synhelion's innovative solar fuel technology for its flight operations, with plans to extend this offering to its customers in the near future.

Driving Sustainability in Aviation

Founded in 1939, Pilatus Aircraft Ltd is Switzerland's largest aircraft manufacturer, with over 4,400 aircraft developed, built, and delivered globally. The company is now taking a significant step towards sustainability by integrating Synhelion's solar fuels into its operations. This initiative not only supports Pilatus' own fleet but also provides an opportunity for its customers to

contribute to the defossilisation of air travel through Sustainable Aviation Fuel (SAF).

As part of this strategic collaboration, Pilatus became a shareholder of Synhelion in April 2024. This investment underscores Pilatus' long-term commitment to sustainable aviation. Hansueli Loosli, Chairman of the Pilatus Board of Directors, stated, "Pilatus has been committed to sustainability and energy efficiency for many years. We are firmly convinced that sustainable aviation fuel (SAF) will be an integral part of aviation's future, and we aim to make a significant contribution."

Leadership Perspectives on the Partnership

Markus Bucher, CEO of Pilatus, expressed confidence in the potential of solar fuels, saying, "We are convinced by the technology of solar fuels – it is the best way to defossilise air traffic as quickly as possible. We are delighted to take on a pioneering role with Synhelion, contributing significantly to sustainability in aviation."

Philipp Furler, Co-CEO and Co-Founder of Synhelion, echoed this sentiment, "We are extremely proud to have Pilatus, a leading manufacturer of turboprop and jet aircraft, as a partner and shareholder. Together, we will work with full commitment to scale our solar fuels worldwide."

Future Plans and Developments

The partnership will focus on rolling out sustainable solar fuels to Pilatus' entire customer fleet within the next decade. Synhelion is currently industrializing its technology for sustainable, synthetic fuel production, with the world's first industrial demonstration plant for solar fuel, "DAWN," being constructed in Jülich, Germany. The plant is expected to be commissioned this year, producing initial quantities of fuel for demonstration purposes.

About Synhelion

Synhelion harnesses solar energy to produce nearly carbon-neutral solar jet fuel, diesel, and gasoline, offering a viable alternative to fossil fuels. These solar fuels can directly replace conventional fuels and are compatible with existing global infrastructure. Their technology addresses CO^2 emissions in transportation sectors that cannot be easily electrified and supports industries requiring high-temperature process heat.

The company aims to produce large quantities of solar fuels rapidly to defossilise the transportation sector. By 2025, Synhelion plans to construct its first commercial production plant in Spain, with a target of producing one million tons of fuel per year by 2033, covering half of Europe's SAF demand by 2040.

About Pilatus Aircraft Ltd

Pilatus Aircraft Ltd, established in 1939, is known for developing and producing unique aircraft, including the best-selling PC-12 single-engine turboprop, the PC-7 MKX, the PC-21, and the innovative PC-24 business jet. With over 3,000 employees, Pilatus is one of the largest employers in Central Switzerland. The company emphasises sustainable practices and provides extensive job training for young people. Pilatus also owns Airport Buochs and includes Skytech as part of its group.

This partnership between Synhelion and Pilatus represents a significant milestone in the journey towards sustainable aviation. By integrating solar fuels into its operations and offering them to customers, Pilatus is setting a new standard in the industry, showcasing a strong commitment to environmental responsibility and innovation.

Click for more information on the services and advancements of Synhelion and Pilatus.

https://youtu.be/GoVca4pmQss

IMAGES COURTESY OF: Synhelion

LEONARDO UNVEILS NEXT-GEN AW249 HELICOPTER AT EUROSATORY

The Italian Army's New Exploration and Escort Rotorcraft Makes Its International Premiere.

The AW249, Leonardo's next-generation exploration and escort helicopter, made its international debut at the Eurosatory exhibition in Paris (June 17-21). The unveiling ceremony, attended by industry representatives, Italian Defence officials, and international delegations, marked a significant milestone for this cutting-edge rotorcraft, also known as the AH-249A NEES (Nuovo Elicottero da Esplorazione e Scorta) or 'Fenice.'

A New Era in Combat Helicopter Design

The AW249 stands out as the only all-new Western combat helicopter design, tailored to meet the stringent operational requirements of the next three decades. This helicopter is the result of a robust collaboration between the Italian Ministry of Defence and Leonardo, emphasising a design that bridges the gap between current capabilities and future demands in military vertical lift.

Featuring a complete open architecture, the AW249 offers significant growth potential and adaptability to evolving system and capability requirements. Its high performance metrics include impressive speed, range, power margin, payload capacity, and manoeuvrability in extreme conditions, all crucial for the demanding "nap-of-the-earth" flight operations.

Integrated Multi-Domain Operations

One of the core strengths of the AW249 is its full integration and interoperability within modern multi-domain battlefields, encompassing air, land, sea, space, and cyber domains. The helicopter's advanced cockpit boasts a large area display human-machine interface, touch screen, and gesture recognition devices, along with a sophisticated Leonardo-developed Battle Management System. This setup allows the crew to rapidly access critical flight, navigation, and mission information through multiple sensing and advanced connectivity technologies.

Versatile Mission Capabilities

The AW249 is designed to perform a wide range of missions, including aerial escort, close air support, close combat attack, and air interdiction. It also serves as an information acquisition element within a C4 system (Command, Control, Communications, Computers and Intelligence), utilizing its own and cooperating units' surveillance systems to identify ground units and disseminate this information securely to Command & Control Centres. This capability enhances crewed-uncrewed teaming opportunities, further extending its operational versatility.

Advanced Weapon Systems and Survivability

Equipped with a flexible weapon system, the AW249 can deploy guided and unguided 70mm rockets, air-to-air infrared guided missiles, air-to-ground radio frequency or fiber optic guided missiles, and a 20mm three-barrel Gat ling gun. Its survivability is enhanced by an advanced Integrated Defensive Aids Suite (IDAS), armoured seats, ballistic-tolerant fuel tanks, crash worthiness, low detectability, and superior situational awareness provided by its navigation and sensor-fusion capabilities.

Innovative Development and Support

The AW249 benefits from digital simulation capabilities, high-fidelity mission simulation, virtual reality training, and prescriptive maintenance via data gathering and analysis. These features ensure that the helicopter is not only state-of-the-art but also prepared for future technological advancements.

Leadership Perspectives

Lorenzo Mariani, Co-General Manager of Leonardo, highlighted the helicopter's integration of digital and AI technologies, connectivity, cyber protection, autonomy, and collaborative operations with remotely piloted systems. "The AW249 epitomizes the key winning factors and enablers in our defence and security strategy," Mariani said. "We believe this sector will contribute to a stronger coordinated effort in Europe and represents a highly competitive value proposition for the international market."

Gian Piero Cutillo, Managing Director of Leonardo Helicopters, emphasized the technological advancements and mission capabilities brought forward by the AW249. "With the AW249, we've reached the top in our military rotorcraft know-how," Cutillo stated. "Our collaboration with the Italian Army has been fundamental, and we thank the Italian Defence Authorities for their strong support."

Looking Ahead

With a maximum take-off weight of 8.3 tons, the AW249 is set to replace the Italian Army's aging AW129 fleet. After its maiden flight in summer 2022, four prototypes have been built, with two actively involved in performance, system integration, and payload testing. Production contracts are expected soon, with deliveries to the Italian Army beginning in 2027. The AW249 is also available for the export market, promising exceptional capabilities and a modern design to meet global defence needs.

IMAGES COURTESY OF: Leonardo

METAFUELS AND EUROPEAN ENERGY TO ESTABLISH ESAF FACILITY IN DENMARK

Saurabh Kapoor, CEO of Metafuels

In a significant move towards sustainable aviation, Metafuels AG, a Swiss aviation tech company, has joined forces with European Energy to establish a groundbreaking synthetic sustainable aviation fuel (eSAF) facility near Padborg in southern Denmark. This collaboration marks a pivotal moment in the aviation industry's quest to reduce its carbon footprint.

The new facility, planned adjacent to a future Power-to-X facility from European Energy, is poised to produce approximately 12,000 liters of eSAF daily. This production capacity underscores the commitment of both companies to scale up sustainable aviation fuel production and change the way aircraft are fueled.

Saurabh Kapoor, CEO of Metafuels, stressed the importance of this partnership, stating, "European Energy is a key partner for us as we look to take the idea of eSAF from concept to reality – this can drastically cut emissions in the aviation sector, which is one of the hardest to decarbonise."

The aviation industry has long been grappling with its environmental impact, contributing over 2% of global CO_2 emissions and facing pressure to reduce its carbon footprint. Initiatives like the European Union's RefuelEU Aviation and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) are driving forces behind the industry's shift towards sustainable practices. Metafuels' innovative aerobrew technology plays a crucial role in this transition. This technology converts sustainably produced methanol into jet fuel with remarkable efficiency, with up to a 90% reduction in life cycle emissions compared to conventional jet fuel. Importantly, it is a drop-in fuel, eliminating the need for aircraft re-engineering or infrastructure overhauls.

Emil Vikjær-Andresen, EVP and Head of Power-to-X at European Energy, highlighted the broader impact of such initiatives: "Reducing the climate impact of aviation fuels through renewable energy is an important part of the green transition." He emphasised the potential of green methanol and sustainable aviation fuel in decarbonising the aviation sector, a move that aligns with global efforts to combat climate change.

Metafuels, as a Zurich-based aviation tech startup, is dedicated to developing and deploying sustainable fuel technologies. Their focus on synthetic aviation fuel addresses a critical aspect of global heating, particularly in an industry where emissions have a significant impact on effective radiative forcing.

European Energy, with its extensive experience in renewable energy solutions, brings a wealth of expertise to this partnership. With a presence in 28 countries and a robust pipeline of renewable projects, European Energy is at the forefront of driving the green transition globally.

The collaboration between Metafuels and European Energy represents a beacon of hope for the aviation industry, showcasing tangible steps towards a more sustainable and environmentally conscious future. As the world shifts towards renewable energy and sustainable practices, initiatives like these pave the way for a greener aviation sector and a healthier planet.

For More Information Visit: https://metafuels.ch/

IMAGE COURTESY OF: Metafeuls

FARNBOROUGH 2024 SETS THE STAGE FOR AEROSPACE INNOVATION

In the world of aerospace and defence, every two years, the spotlight shifts to Farnborough, a picturesque town in southern England, where industry titans gather for the prestigious Farnborough International Airshow (FIA). This year, from July 22nd, the event promises not only to showcase cutting-edge technology but also to chart the course for the future of the aerospace and defence sectors.

Dassault Systèmes will take centre stage at the FIA, a pioneer in digital solutions for aerospace and defence industries. Under the theme "Securing the Future," Dassault Systèmes will unveil advancements aimed at transforming the sector's approach to innovation, sustainability, and workforce readiness.

"We are thrilled to participate in this year's Farnborough International Airshow," remarked David Ziegler, Vice President of Aerospace and Defence at Dassault Systèmes. "Our focus is on accelerating digitisation and innovation across the industry. This event is an unparalleled opportunity to engage with our customers, demonstrate our latest solutions, and spark meaningful conversations that will shape the future of aerospace and defence."

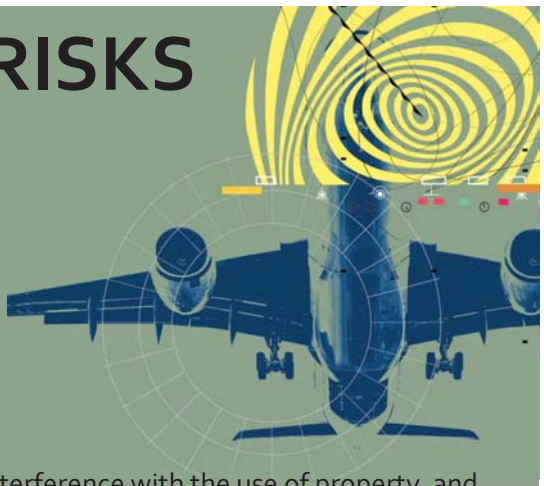
Each day of the event will feature discussions centred around key themes crucial for securing the future of the industry:

Day 1: Enabling Sovereignty
Day 2: Defence Modernisation
Day 3: Uncompromising Quality
Day 4: Sustainable Innovation
Day 5: Workforce of the Future

As anticipation builds for Farnborough International Airshow 2024, stakeholders from around the globe are preparing to converge, exchange ideas, and forge partnerships that will define the future of aerospace and defence.

IMAGE COURTESY OF: PEXELS

AVIATION INSURANCE RISKS IN THE AGE OF SIGNAL JAMMING



Since the advent of commercial aviation, the industry has consistently been a target for hostile entities seeking to disrupt or control flight operations. Insurance carriers and underwriters have been diligently working to comprehend and mitigate these risks, offering a safety net for the aviation sector. However, the rise of advanced technology has introduced a new, insidious threat: signal jamming.

In recent months, a series of alarming incidents have imperilled passenger safety. Finnair, Finland's national carrier, made the difficult decision to suspend landings at Estonia's Tartu Airport. This action followed two aircraft experiencing last-minute GPS malfunctions, forcing them to abort their descents and return to Helsinki.

These disruptions have escalated tensions, sparking a diplomatic row as Estonia and other Baltic states accuse Russia of cyber and electronic warfare. The gravity of the situation is underscored by reports of approximately 46,000 aircraft experiencing GPS malfunctions over the Baltic region in the past year alone. The use of drones and countermeasures developed in the Russia/Ukraine conflict has enhanced and disseminated jamming skills.

Insurance companies are now grappling with the challenge of quantifying the risk posed by signal jamming. Factors such as the frequency of jamming incidents, the potential for damage, and the cost of preventative measures all influence the assessment of premiums.

Understanding Signal Jamming

Signal jamming involves the intentional disruption of communication channels through the emission of radio signals. These signals can interfere with the normal operation of communication systems, causing disruptions in navigation, communication, and control systems of an aircraft. The increasing prevalence of this technology, often used maliciously, presents a significant risk to aviation safety. In extreme cases, signal jamming can lead to catastrophic accidents.

Aviation Insurance Risks

Traditionally, many aviation insurance policies exclude coverage for war and other perils such as noise, pollution, interference with the use of property, and electromagnetic interference. These clauses preclude coverage for claims caused by these events. To insure against war risks or other perils, the appropriate wording must be included, resulting in a corresponding increase in premiums to offset the insurer's risk.

Ambiguous policy wording leaves insurers and reinsurers vulnerable to claims arising from signal jamming. Frequently, policies exclude electrical and electromagnetic interference unless caused by or resulting in a crash, fire, or in-flight emergency. War risk exclusions typically refer to acts committed for political or terrorist purposes.

Such ambiguity could lead to scenarios where insurers inadvertently assume significant risks. For instance, consider a situation where an aircraft's communication system is jammed by hackers during a critical flight phase, leading to a fatal accident. The insurer cannot rely on the interference exclusion, which specifically provides for coverage in the event of a crash.

Similarly, proving that hackers acted for political rather than economic or personal purposes requires demonstrating a clear link between them and politically or terrorist-backed entities – a near-impossible task in today's geopolitical climate.

Mitigating the Risk

To mitigate the risks associated with signal jamming, aviation companies and insurers must collaborate to develop comprehensive risk management strategies. These may include investing in anti-jamming technologies, enhancing pilot training programmes, and advocating for stricter domestic and international regulations against the use of jamming devices.

Signal jamming also raises critical legal and policy questions. For instance, who is liable if a signal jamming incident leads to an accident? Is it the person using the jamming device, the manufacturers, or the airline itself for not having adequate safeguards in place? These questions must be addressed by insurers to fully understand the risks they assume in today's era of hybrid cyber and electronic interference and warfare, and to determine their approach to aviation coverage and premiums.

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AFRICAN AIR CARGO BOUNCES BACK, EYES EASTERN MARKETS

After facing a challenging period, the African airfreight market is showing signs of recovery, driven by increased demand and strategic shifts towards eastern markets.

Encouraging Trends In Air Cargo Demand

Recent data from the International Air Transport Association (IATA) highlights a positive trend: African carriers saw cargo demand increase by 16.8% year-on-year in the first quarter of this year. This is a significant rebound from the previous year, where demand fell by 1.8% due to inflation in Europe and a strong US dollar that dampened consumer spending.

Sanjeev Gadhia, CEO of Nairobi-based Astral Aviation, attributes the growth to the burgeoning e-commerce sector and improvements in major economies like South Africa and Nigeria. Peter Musola, head of cargo commercial at Kenya Airways, concurs, noting early signs of economic recovery in these key markets.

Dirk Goovaerts. IMAGE CREDIT: Swissport

Industry-Wide Optimism

Dirk Goovaerts of Swissport International, which handles substantial cargo volumes across Africa, reports robust growth this year. The company is investing in its infrastructure, particularly in South Africa, to support this upward trend. "We are reviewing a major upgrade for our facilities in South Africa," says Goovaerts, adding that they are also modernizing their ground support equipment.

Shifting Focus To Eastern Markets

China is once again turning its attention to Africa, presenting new opportunities for the continent's air cargo sector. Astral Aviation, which has been focusing on establishing connections with China, recently launched flights to Abu Dhabi in partnership with Etihad Cargo. This partnership includes links to Ezhou, China.

Astral also has interline agreements with China Cargo Airlines and China Southern, and operates its own freighter flights to Hong Kong in partnership with Cathay Pacific. Gadhia explains that a decline in demand from Europe has prompted this strategic pivot. "Europe used to play a big role in e-commerce, but that has moved to Asia," he notes.

Expanding E-Commerce Infrastructure

Ethiopian Airways is capitalizing on the growing e-commerce demand from China by launching a new logistics facility at Addis Ababa Bole International Airport. This facility aims to position Addis Ababa as a central hub for cross-border e-commerce logistics in Africa.

Kenya Airways is also looking east. The airline has expanded its freighter fleet with two additional Boeing 737-800s to service routes to the Middle East and India. Musola highlights that the Middle East, with its double-digit growth, presents a significant opportunity for Kenyan exporters, particularly in the meat and horticulture sectors.

Sea-Air Modal Shifts

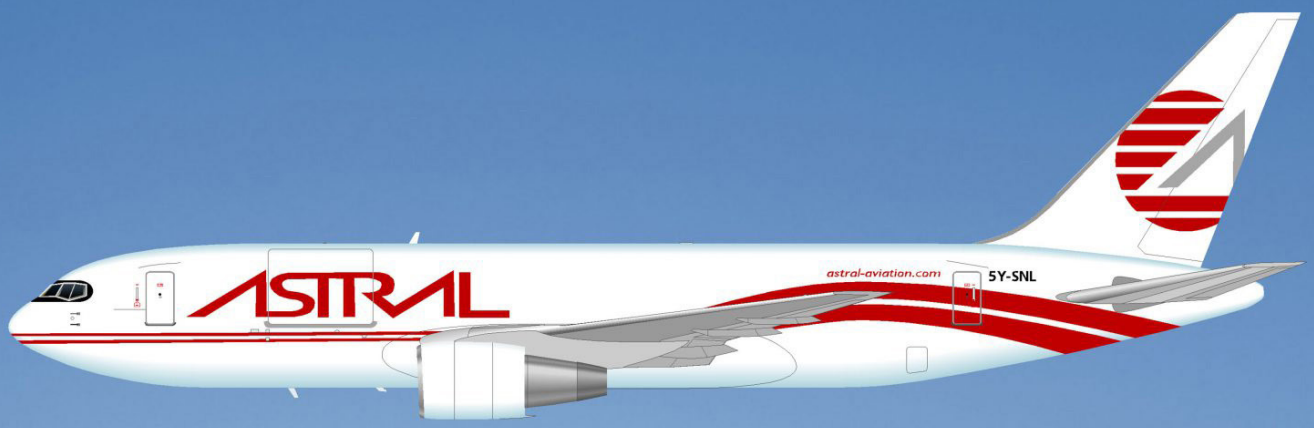
Another driver of air cargo demand is the shift from sea to air transport due to missile attacks in the Red Sea, which have disrupted traditional shipping routes. Kenya Airways is leveraging its 737-300 freighters to service intra-Africa routes, adapting to these changing logistics dynamics. Swissport's Goovaerts anticipates a strong year for air cargo in Africa, partly due to these ocean freight challenges.

Future Prospects And Challenges

While the African air cargo market is on an upward trajectory, geopolitical issues remain a concern. Musola points out that conflicts, such as those in Sudan, and closed airspaces increase operational costs and complicate logistics. However, the industry remains hopeful for resolutions that will further stabilize and boost growth.

As Africa's air cargo sector continues to recover and adapt, the strategic shift towards eastern markets and investments in infrastructure are setting the stage for sustained growth and new opportunities in the global logistics landscape.

IMAGE CREDIT: Astral



AVMAX AND ASTRAL AVIATION
COMPLETE TWO BOEING AIRCRAFT DEALS

Avmax Group has announced the successful completion of two significant deals with Kenya's leading cargo carrier, Astral Aviation. These transactions, revealed at the AviaDev Conference, underscore a strategic partnership aimed at enhancing fleet optimization and market growth.

In the first deal, Avmax purchased and leased back a Boeing 767-200 Freighter (MSN 22217), an aircraft that has been a key component of Astral Aviation's fleet since 2020. The second transaction involves the dry lease of a Boeing 737-400F (MSN 27082), a strategic move that aligns with Astral Aviation's fleet optimization plans.

Steve Hankirk, CEO of Avmax Group, expressed his enthusiasm about the collaboration, stating, "We are pleased to have completed both transactions with Astral Aviation and welcome them into the Avmax family. Astral continues to demonstrate that they are a leading cargo carrier in the African market, and we are proud to support them with the growth of their airline."

Sanjeev Gadhia, Founder and CEO of Astral Aviation, emphasized the strategic importance of these deals. "We are excited to add Avmax as a growth partner. Both transactions highlight their ability to provide flexible solutions that meet market requirements, enabling further growth for the Astral fleet. The introduction of the B737-400F marks an important inflection point in our growth strategy. This aircraft streamlines our fleet mix, allows Astral to match cargo demand with appropriate capacity, and ultimately offers better solutions to our customers."

Scott Greig, Senior Vice President and Head of Avmax Aircraft Leasing Inc., highlighted Avmax's focus on the African market and its operational flexibility. "Both transactions demonstrate our commitment to the African market and highlight Avmax's diverse capabilities in leasing aircraft to leading carriers like Astral Aviation. We are pleased to support Astral as they optimize their fleet with the introduction of a B737-400F, enhancing their ability to meet growing cargo demand effectively."

These announcements, made at the AviaDev Conference in Namibia, come at a time when industry leaders are discussing the latest developments and opportunities in African aviation. The collaboration between Avmax and Astral Aviation marks a significant milestone in both companies' efforts to strengthen their market positions and enhance their service offerings.

As the African aviation sector continues to evolve, partnerships like the one between Avmax and Astral Aviation are crucial for meeting the growing demands of the market. The strategic addition of the Boeing 737-400F and the leaseback of the Boeing 767-200 Freighter are expected to bolster Astral Aviation's capacity to provide efficient and reliable cargo services across the continent.

By investing in flexible and market-responsive solutions, Avmax and Astral Aviation are well-positioned to capitalize on the increasing cargo demand and drive forward the growth of African aviation.

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THE KEY PLAYERS IN AVIATION AND AEROSPACE GOVERNANCE

The aviation and aerospace industry operates under a meticulous framework of regulations and standards set by a myriad of international and national governing bodies. These organisations ensure that the industry maintains the highest levels of safety, efficiency, and sustainability.

International Governing Bodies

International Civil Aviation Organization (ICAO)
As a specialized agency of the United Nations, the ICAO is pivotal in setting international aviation standards and regulations. Its mission is to ensure the safety, efficiency, and sustainability of air transport globally, impacting every aspect of international aviation operations.

International Air Transport Association (IATA)
The IATA, a trade association for the world's airlines, plays a crucial role in establishing global standards for airline safety, security, efficiency, and sustainability. Beyond standard-setting, IATA facilitates airline operations through advocacy and a variety of essential services.

European Union Aviation Safety Agency (EASA)
EASA's role is central to aviation safety and environmental protection within the European Union. By developing common safety and environmental rules, certifying aircraft and components, and overseeing member states' aviation safety measures, EASA ensures a cohesive approach to aviation safety across Europe.

Federal Aviation Administration (FAA)
In the United States, the FAA regulates all aspects of civil aviation. It is responsible for aircraft certification, air traffic management, and the establishment and enforcement of safety regulations, making it a cornerstone of aviation safety in the U.S.

Civil Aviation Authorities (CAAs)
Each country often has its own CAA, such as the UK CAA, Australian CAA, and New Zealand CAA. These authorities are responsible for regulating aviation safety, security, and standards within their jurisdictions, tailoring their oversight to national needs and conditions.

Airports Council International (ACI)
Representing the world's airports, ACI fosters cooperation between airports and other aviation sectors. It works on developing standards, best practices, and policies to enhance airport operations and safety, promoting the interests of airports globally.

Regional and Specialized Organizations

African Civil Aviation Commission (AFCAC)
Operating under the African Union, AFCAC promotes the development of a safe, secure, and sustainable civil aviation sector in Africa. It harmonizes civil aviation policies and practices among African states, enhancing regional cooperation and standards.

APEC Transportation Working Group
This group focuses on improving transportation systems in the Asia-Pacific region, including aviation. By promoting economic integration and development, it enhances the efficiency and connectivity of regional transportation networks.

Latin American Civil Aviation Commission (LACAC)
LACAC works to foster cooperation and coordination among Latin American countries in civil aviation matters. It aims to improve safety, security, and development in the region, promoting a unified approach to aviation standards.

Industry Associations

Aerospace Industries Association (AIA)
AIA represents aerospace manufacturers and suppliers in the United States. It advocates for policies and regulations that support the aerospace and defence industries, driving innovation and growth.

General Aviation Manufacturers Association (GAMA)
GAMA represents manufacturers of general aviation aircraft, engines, avionics, and related equipment. It promotes safety, innovation, and growth in the general aviation sector, supporting manufacturers and stakeholders.

Business Aviation Associations
Organizations such as the National Business Aviation Association (NBAA) and the African Business Aviation Association (AfBAA) advocate for the interests of business aviation operators. They work towards favorable regulations and standards to support the business aviation community.

Research and Standards Organisations

National Aeronautics and Space Administration (NASA)
Though primarily focused on space exploration, NASA contributes significantly to aeronautics research and development. Its work leads to advancements in aviation technology and safety, benefiting the industry at large.

American Institute of Aeronautics and Astronautics (AIAA) AIAA is a professional society dedicated to advancing the arts, sciences, and technology of aeronautics and astronautics. It promotes research, education, and policy initiatives, fostering innovation and progress in the field.

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A FLIGHT THROUGH TIME: LEGENDS OF THE SKIES - SA AIR FORCE MUSEUM AIR SHOW 2024

On the 2nd of May, aviation enthusiasts and history buffs alike gathered at the revamped Air Force Mobile Deployment Wing in Valhalla, Pretoria, for the much-anticipated 13th SA Air Force Museum Air Show. Themed "A Flight Through Time: Legends of The Skies," this annual extravaganza not only showcased thrilling aerial displays but also served as a crucial fundraiser for the museum.

Formerly known as Air Force Base Swartkop, the newly renamed Air Force Mobile Deployment Wing played host to a spectacular lineup of events that celebrated South Africa's rich aviation heritage. The theme for this year's show, as articulated by the South African Air Force (SAAF), promised a deep dive into the nation's aviation legacy, from its pioneering beginnings to modern-day innovations.

"The 'flight through time' theme speaks volumes about the SAAF's commitment to air dominance and technological advancement," noted the promotional statement. Attendees were invited to immerse themselves in a journey through history, paying homage to the remarkable individuals and groundbreaking innovations that shaped South African aviation.

The air show program was meticulously designed to captivate audiences with a dazzling array of aerial feats and aerobatics. From precision manoeuvres by iconic aircraft like the Agusta A109 and Oryx rotorcraft of 17 Squadron to the nostalgic displays by historic aircraft from both the SAAF and civilian airshow teams, the skies above Pretoria were alive with excitement.

"The legends of the skies, from the renowned Flying Lions to the valiant pilots of 2 Squadron, took center stage, demonstrating their skill and prowess," proclaimed the event organizers. Static displays within and outside hangars further enriched the experience, allowing visitors to get up close to legendary aircraft that have left an indelible mark on South African aviation history.

The air show also served as a platform for the broader aviation community to come together. Civilian airshow display teams joined forces with SAAF and Museum assets, presenting a united front that celebrated the diversity and innovation of South African aviation.

In conclusion, the SA Air Force Museum Air Show 2024 was not just an event; it was a testament to the enduring spirit of aviation in South Africa. By honouring the past and embracing the future, this year's air show underscored the nation's ongoing commitment to excellence in the skies.

Hawk approach

The SAA Museum is a nonprofit company. Donations fund the upkeep of the museum, and helps them to continue their work to preserve the history and evolution of aircraft in South Africa. Help them to inspire future aviation professionals: https://saamuseum.co.za/donate/

Tiger Moth

Beechcraft E18S

Navion

Havards

Hawk Retract

Oryx Huey

Agusta

IMAGES COURTESY OF: Sam Basch

MEMBERSHIP HAS ITS PRIVILEGES

By Jamie beckett

IMAGE COURTESY OF: AOPA

Early in my career as a pilot, I began writing for an aviation publication. My thinking was that a pilot who wrote might be more valuable than one who didn't. Whether this worth was measured in financial gain, continued employment, or something else wasn't clear to me. I simply reasoned that the skills I'd acquired in life should be used, not stored away. So, I wrote and I flew, and I was happy.

Because I was publishing my thoughts and experiences in print, I decided it was important to be completely impartial, so I couldn't be accused of favouring any particular group. There is enough division in life thanks to politics, economics, and geography. Even in aviation, cliques form around ultralights, LSAs, warbirds, and more. As a result, I spent the first part of my career as a complete independent. I didn't belong to any organisation, association, or group that required membership. This decision felt right at the time.

Years into my career, I was given the opportunity to serve as an aviation editor for Gleim Aviation. You may know them as the producers of the books with bright red covers. I used them as a student pilot and as a CFI. I believed in Dr. Irvin Gleim's method of teaching and learning. He was a truly brilliant man. Weird, but brilliant. I mean that in the best possible sense.

It was Dr. Gleim's perspective that changed my thinking and caused me to join a group. He believed in the power of community and the potential of bringing people together in common cause. When he found out I wasn't affiliated with any aeronautical organisation, he simply advised, "You should become a member."

I wonder if his thoughts on the topic were influenced by Helen Keller, a woman who had no involvement with aviation but was revered for her determination to become all she could be. "Alone we can do so little," she said. "Together we can do so much." Those words resonate with me. Keller's life was devoted to pushing limits and resisting constraints.

In aviation, we often find ourselves in a similar position. We are a minority, often ruled by a majority that has little understanding of the issues we face or the challenges that befall us. Sometimes unexpectedly. Sometimes unfairly. It was with this new perspective that I became an enthusiastic joiner. I've chosen to gather with groups, to do my part in shouldering the load, and to benefit both personally and professionally from the perks of membership.

I became a member of the Aircraft Owners and Pilots Association (AOPA) before being hired as an ambassador for the highly successful You Can Fly initiative. A decade later, I'm still involved as an employee, albeit in a slightly different role. I continue to be a member, too—a status I intend to maintain for the rest of my days.

My commitment is as simple as it is necessary. It comes from long ago when Aesop told the story of the "Four Oxen and the Lion." The oxen worked together to protect each other, keeping the lion at bay. When they quarreled and drifted apart, the lion picked them off one by one. The fable concludes with, "United we stand, divided we fall." That short, simple sentence is one of life's great truths. I take it seriously and wish we all would.

Today, I hold membership in various aeronautical organisations. My involvement, inexpensive and simple as it may be, supports the group. The larger the group, the more power it has, and the more benefits it can offer its members and society at large. I chose to become a lifetime member of the Experimental Aircraft Association (EAA) because, as a pilot, I've always been drawn to experimental aircraft. As a mechanic, I find building, flying, and maintaining aircraft at the grassroots level stimulating.

Being an avid seaplane enthusiast, I am also a lifetime member of the Seaplane Pilots Association. This smaller organisation serves many similar functions for those who enjoy and respect the aquatic niche of aviation. I've also joined the Flying Musicians Association, the Cessna 150-152 Club, and others.

In the end, I've decided to be a joiner rather than a standout. The general aviation industry has supported me in many ways over the years, often before I even knew these organisations existed. It only seems reasonable to step up, join up, and help shoulder the load.

There's always room for one more member. Consider joining me by joining an association that meets your needs. Your participation is likely to pay dividends in the future—for all of us.

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