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RIAT 2025: A VISUAL FEAST OF AVIATION EXCELLENCE

The Royal International Air Tattoo returned to RAF Fairford in 2025 with a spectacular display of military, historical, and experimental aircraft, drawing crowds and enthusiasts from across the globe. Scroll to page 32 to view Stuart Haigh's photography, as he captures the energy, scale, and sheer diversity of the airshow, from veteran warbirds to cutting-edge technology.

SUBPN AN74T EGYPTIAN AF

Probably the star of the show for many, was this Antonov AN-74T of the Egyptian Air Force. It was the first time Egypt had attended the show, making it the 59th different nation to participate, and the sole African air arm to do so in 2025.

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CONTACTS

PUBLISHER WORLD AIRNEWS PTY LTD
15 Jacaranda Drive, Craigavon AH, Sandton,2192
Telephone: +27 11 465 7706 / 083 378 2060
info@worldairnews.co.za

EDITORS
Joan Chalmers
Email: joan@worldairnews.co.za

Joey Schulz - Sub Editor
Email: joey@worldairnews.co.za

Keith Fryer -Technical Advisor
Email: keith@worldairnews.co.za

OPERATIONS & ENQUIRIES
Judi Rodokanakis
Email: judi@worldairnews.co.za

ACCOUNTS
Krystyna Zanike Evans
Email: krys@worldairnews.co.za

BUSINESS DEVELOPMENT/ SOUTH AFRICA
Hes Kiggen
Email: hes@worldairnews.co.za

Jimmy Skosana
Email: jimmy@worldairnews.co.za

BRITAIN / EUROPE BSP
Sally Passey
Email: sally@worldairnews.co.za

RUSSIA - MOSCOW
Yury Laskin
Email: yury@worldairnews.co.za

DISTRIBUTION CHANNELS
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RIAT 2025: Painting the skies in the red, white and green of the Italian flag and to the music of Opera singer, Luciano Pavarotti. The Frecce Tricolori, the national display team of Italy fly the Aermacchi MB-339PAN aircraft which will soon be replaced by the more modern Aermacchi M-346 Master. Image Credit: Stuart Haigh

GLOBAL AVIATION FACES A WORKFORCE TIPPING POINT

As fleets expand and retirements accelerate, the demand for pilots, engineers, and controllers is set to outpace supply, prompting urgent calls for innovative training and recruitment strategies. Even as airlines continue to weather a complex mix of economic headwinds and fluctuating passenger demand, one pressure point in the global aviation ecosystem is impossible to ignore: people. Across cockpits, maintenance hangars, cabin aisles, and control towers, the next two decades will see unprecedented demand for skilled professionals.

Boeing projects that by 2044 the industry will require some 660,000 new pilots, 710,000 maintenance technicians, and one million cabin crew, amounting to a total of roughly 2.4 million new aviation professionals worldwide. Airbus' outlook aligns closely, highlighting the dual drivers of fleet growth and replacements: 43,420 new aircraft over the next 20 years imply a workforce requirement of approximately 2.3 million.

In the nearer term, CAE forecasts that roughly 300,000 new pilots alone will be needed by 2034, alongside maintenance and cabin staff across all regions—including Africa. Yet training throughput is under strain, from pilot academies to air traffic controller (ATC) programmes. Europe continues to see network delays linked directly to ATC capacity, while in the United States the FAA plans to hire nearly 9,000 controllers by 2028. Even so, retirements and high attrition during training temper the net gains.

Underlying these pressures is a simple imbalance: traffic growth outpaces both aircraft availability and the certified people needed to operate them. IATA and independent forecasts continue to anticipate rising revenue passenger kilometres (RPK) into 2025 despite economic headwinds, while production and supply-chain constraints ripple into training schedules for maintenance and flight operations alike.

High attrition, limited instructor bandwidth, and scarce simulator or line-training slots further constrain throughput. Regulatory reforms such as Competency-Based Training & Assessment (CBTA), Evidence-Based Training (EBT), and virtualised models are being introduced to scale output without compromising standards, particularly for European ATCOs (air traffic control training). At the same time, the high cost and long duration of training pathways, now compounded by post-pandemic wage inflation, dampens applicant pools and intensifies competition for talent globally.

Regionally, Africa's needs are clear but acute. AFRAA estimates that over the next two decades, the continent will require roughly 21,000 pilots and 22,000 engineers and technicians. Local stakeholders flag ageing workforces, limited training access, and funding gaps as ongoing challenges. In South Africa, the SACAA and industry partners are seeking to expand engineering pipelines and Authorised Training Organisation (ATO) capacity, with a mix of scholarships, mentorships, and university partnerships aimed at boosting throughput.

Across the globe, the response is multi-pronged: partnerships between airlines, OEMs, ATOs, and universities; targeted scholarship programmes; policy levers such as temporary slot rules to manage ATC bottlenecks; and a greater emphasis on simulator-heavy, virtualised training. Yet even as these measures take shape, the limits of training throughput remain the defining bottleneck for an industry racing to match soaring demand with scarce skilled personnel.

This edition of World Airnews shines a light on the people powering aviation's future—and the innovative programmes driving workforce development across every continent, illustrating how industry leaders are shaping a skilled, inclusive, and sustainable workforce for decades to come.

MEETING THE GLOBAL DEMAND
FOR SKILLED AVIATION AND DEFENCE PERSONNEL

From aviation cockpits to naval bridges and armoured vehicles, simulators are reshaping workforce training, reducing costs, and enhancing operational readiness across industries worldwide.

Aviation Training and Workforce Development

A simulator is a system that combines software and hardware to replicate training, reproducing the authentic experience of operating a vehicle. For instance, pilots undergo training using simulators before flying a jumbo jet, allowing them to practice and familiarise themselves with the controls and dynamics of aircraft. Simulators are widely used across various industries to provide a safe, controlled environment for developing skills or enhancing proficiency in a simulated setting. The simulators market is projected to reach USD 19.35 billion by 2030, up from an estimated USD


AI Image Courtesy of : Cormorant

13.63 billion in 2025, at a CAGR of 7.3%. The market is witnessing robust global expansion, with manufacturers and developers catering to a wide range of clients, including commercial enterprises, government agencies, and individual consumers. Key players in the simulators market include CAE Inc. (Canada), L3Harris Technologies, Inc. (US), Thales (France), Saab AB (France), and Indra Sistemas, S.A. (Spain) and Simiflight (South Africa).

Fueled by technological advancements and rising demand for cost-effective and efficient training solutions, simulators are gaining traction across diverse industries, including aviation, healthcare, defence, automotive, and manufacturing. Other factors driving the market include the acceptance of virtual pilot training to ensure aviation safety, the need to reduce costs in pilot training, and reductions in military budgets in developed economies. Providing realistic and immersive training environments for various professions minimises risks and costs associated with live training. While the simulators market continues to thrive, challenges such as high initial costs and the need for regular updates are considerations for potential adopters. However, these challenges also present opportunities for manufacturers and developers to create cost-effective solutions and establish long-term client partnerships.

Rising Demand for Skilled Personnel

The delivery schedules of major platform OEMs across aviation, marine, and defence sectors directly influence simulator demand. In civil aviation, simulator acquisition is closely linked to aircraft induction timelines. According to Airbus's Global Market Forecast 2023, more than 40,850 new passenger and freighter aircraft are expected to be delivered globally by 2042, with over 22,000 units destined for Asia Pacific and India. Boeing's 2024 Pilot and Technician Outlook projects the need for approximately 2.3 million new aviation personnel by 2043 — including 649,000 new pilots, 690,000 maintenance technicians, and 938,000 cabin crew members — with Asia Pacific accounting for the highest regional demand across all categories. This projected workforce growth is driven by expanding fleets, increasing air traffic, and the retirements of existing personnel.

According to CAE (Canada), simulator deployments typically lag aircraft deliveries by 12–18 months, requiring training centres to align procurement with OEM rollouts to minimise downtime and ensure training readiness. In the marine sector, simulator demand follows the construction of new vessels. In 2023, South Korea's DSME and Hyundai Heavy Industries delivered over 150 merchant vessels, while the US Navy's 2024–2028 Shipbuilding Plan includes 82 combatant and auxiliary vessels. European shipyards like Damen (Netherlands) and Fincantieri (Italy) reported a 9% year-on-year increase in vessel deliveries. These programmes necessitate advanced bridge, engine room, and mission system simulators to support naval and merchant marine training academies.

On the land systems front, increasing induction of modern tanks, APCs, and artillery systems — particularly among NATO-aligned forces — has driven the demand for simulator modules replicating digital fire control, communications, and crew coordination systems, ensuring tactical preparedness and operational safety.

Ecosystem Analysis

One of the strongest drivers for simulator adoption worldwide is the imposition of mandatory training standards by civil aviation, marine, and defence regulators. These mandates go beyond safety compliance and are critical in institutionalising simulator-based training across commercial and military ecosystems.

In aviation, the International Civil Aviation Organization (ICAO) promotes simulator use under

Annex 1 and Doc 9868, supporting competency-based training for multi-crew coordination and emergency scenarios. The US Federal Aviation Administration (FAA), under CFR Title 14, mandates simulator hours for Air Transport Pilot licensing, while the European Union Aviation Safety Agency (EASA) has enforced mandatory Type Rating Training using Full Flight Simulators (FFS) since 2018. India's Directorate General of Civil Aviation (DGCA) updated its Civil Aviation Requirements (CAR) in 2022 to require simulators for recurrent pilot training and licence renewals, especially for handling adverse weather, system failures, and crosswind landings. India's annual simulator training requirement has increased to 36–40 hours per pilot.

The International Maritime Organization (IMO) enforces simulator training through the STCW (Standards of Training, Certification and Watchkeeping) Code in marine training. Since the Manila Amendments 2010, simulator-based training is required for engine room operations, emergency response, and bridge resource management. Countries such as Norway, Singapore, and the UK now mandate at least 40 simulator hours during officer cadet training. According to the European Maritime Safety Agency (EMSA), over 31% of training hours in EU marine academies were delivered through simulators by 2022.

In the defence sector, mandates are evolving to reflect modern warfare demands. NATO's 2022 Defence Planning Capability Review recommends structured simulator training for combat pilots, armoured vehicle crews, and command staff. Germany and France have already incorporated simulation into battalion-level exercises for tanks and aircraft. The US Department of Defense Instruction 1322.18 mandates simulation through Live-Virtual-Constructive (LVC) frameworks during strategic and tactical drills. South Korea and Japan have also adopted simulation requirements for UAVs, submarines, and officer conscription training programmes.

Simulation-based training has emerged as a highly cost-effective and safe alternative to live exercises across aviation, marine, and defence sectors. This shift is driven by growing fuel costs, maintenance burdens, platform wear and tear, and heightened environmental compliance requirements. By replicating real-world scenarios without actual platform deployment, simulation enables operators to reduce operational expenditure while improving personnel readiness and mission capability. From a cost perspective, simulation reduces dependence on fuel-intensive and high-maintenance platforms. According to the US Department of Defence's Training Transformation Implementation Plan (2022), simulation training can lower per-hour costs by up to 70% compared with live operations involving combat aircraft and ground vehicles. Similarly, ICAO and IATA report that simulator-based training in commercial aviation reduces pilot training costs by 30–40%, primarily by lowering fuel consumption, engine wear, and instructor workload.

Marine training institutions — especially those in Singapore and Scandinavia — have reported 20–30% cost savings when using engine room and bridge simulators instead of physical vessels.

Beyond cost, simulation offers substantial safety benefits. It enables personnel to train for hazardous or rare scenarios — such as engine fires, bird strikes, mid-air collisions, or underwater system failures — without endangering lives or risking platform damage. EASA's 2022 safety bulletin indicates that 80% of simulator-trained pilots demonstrated faster and more accurate responses to in-flight emergencies than those trained only on aircraft. In naval domains, simulator-trained officers showed 23% fewer procedural errors during collision-avoidance exercises, based on evaluations conducted by the European Maritime Safety Agency (EMSA) in 2021. These outcomes reinforce simulation's value in enhancing readiness while minimising operational risk.

Geopolitical Tensions and Military Modernisation

Escalating geopolitical tensions and widespread military modernisation efforts are powerful forces driving simulator-market expansion, particularly within the defence sector. In 2024, global military spending rose sharply, reaching USD 2.72 trillion, driven by increased defence budgets across NATO, Indo-Pacific, and Middle Eastern countries. Much of this expenditure is directed towards force readiness, modernisation programmes, and procurement of simulation-based training systems.

Nations increasingly focus on training interoperability, coalition preparedness, and joint operations — needs efficiently met through simulation-based environments.

Countries such as the US, China, India, Poland, South Korea, and Saudi Arabia are expanding their investment in full-spectrum military simulation platforms, including systems for gunnery training, armoured vehicle operations, electronic warfare, cyber operations, and unmanned systems. Live-Virtual-Constructive (LVC) simulation networks are being deployed across multiple countries to enable coalition-level exercises and stress-testing of joint force integration. These systems allow coordinated training across air, land, sea, cyber, and space domains while integrating command, logistics, and intelligence functions.

Simultaneously, the global rise of unmanned and autonomous systems — including UAVs, UGVs, and loitering munitions — has created fresh demand for simulation-driven operator training, swarm coordination, and mission rehearsal. Countries increasingly embed simulation-based UAV and submarine training modules into officer education and conscription programmes. China has scaled simulator-based UAV training across dozens of bases, while countries such as the UK, South Korea, and Australia have introduced similar modules for junior officer training. These trends reflect the increasing institutional reliance on simulation to support modern warfare doctrines and force transformation goals.

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FLEDGLING FLIGHT: WHERE LEARNING TO FLY BEGINS

From the reliable Cessna 172 to advanced trainers like the Cirrus SR20, the aircraft shaping tomorrow's pilots define the path from fledgling aviator to competent professional. Selecting the right aircraft is critical in pilot training, as it influences how quickly students develop confidence, precision, and situational awareness. Across the globe, certain aircraft dominate flight schools due to their reliability, handling characteristics, and cost-effectiveness.

Cessna 172 Skyhawk – The Classic Workhorse

The Cessna 172 remains the most widely used single-engine trainer in aviation history. First flown in 1955, over 44,000 units have been built. Its high-wing design provides excellent downward visibility, ideal for beginners, while its tricycle landing gear simplifies takeoffs and landings. Modern versions feature glass cockpits such as the Garmin G1000, though older models retain traditional gauges.

Technical Highlights:

- **Engine:** Lycoming IO-360-L2A, 180 hp
- **Cruise Speed:** 122 knots (226 km/h)
- **Maximum Takeoff Weight**: 2,450 lbs (1,111 kg)
- **Range:** 640–696 nautical miles (1,185–1,289 km)
- **Avionics:** Garmin G1000 or traditional instruments

The Skyhawk's forgiving flight characteristics, durability, and ease of handling have cemented its reputation as the ultimate first-time trainer.

Piper PA-28 Archer TX – Low-Wing Confidence

The Piper PA-28 series, including the Archer TX, is a staple low-wing trainer, offering robust construction and predictable flight handling. Its low-wing configuration enhances roll stability, while modern avionics like the Garmin G1000 NXi expose students to glass-cockpit technology early in training.

Technical Highlights:
- **Engine:** Lycoming IO-360-C1C, 180 hp
- **Cruise Speed:** 128 knots (237 km/h)
- **Maximum Takeoff Weight:** 2,550 lbs (1,157 kg)
- **Range:** 443 nautical miles (963 km)

Flight schools worldwide value the Archer TX for its combination of simplicity, durability, and readiness for advanced training, from instrument flying to commercial pilot preparation.

Diamond DA40 – Modern Composite Trainer

The Diamond DA40 represents a new generation of training aircraft with a sleek composite airframe, excellent fuel efficiency, and advanced avionics such as the Garmin G1000 NXi or G3X Touch. Its four-seat layout allows instructors to demonstrate complex scenarios while providing ample cockpit space for students.

Technical Highlights:
- **Engine:** Austro AE300 jet fuel, 168 hp or Lycoming IO-360 M1A, 180 hp
- **Cruise Speed**: 147 knots up to 285 km/h
- **Maximum Takeoff Weight:** 2,645 lbs (1,200 kg)
- **Range**: 720 nautical miles (1,333 km)

Lightweight, efficient, and equipped with integrated autopilot, the DA40 is increasingly adopted in South African and international flight schools seeking to prepare students for modern aviation challenges.

Cirrus SR20 – Advanced Training and Safety

The Cirrus SR20 is often the next step after basic trainers, combining high-performance flight with cutting-edge safety features like the Cirrus Airframe Parachute System (CAPS). Its Cirrus Perspective+ avionics suite includes synthetic vision, autopilot, and flight envelope protection.

Technical Highlights:
- **Engine:** Continental IO-360-ES, up to 215 hp
- **Cruise Speed:** 155 knots (287 km/h)
- **Maximum Takeoff Weight:** 3,050 lbs (1,383 kg)
- **Range:** 785 nautical miles (1,454 km)

For students progressing to instrument or commercial training, the SR20 offers exposure to modern avionics and advanced emergency systems, bridging the gap to professional aviation.

Multi-Engine Training – Stepping Up

For those pursuing a Commercial Pilot Licence (CPL) or Airline Transport Pilot Licence (ATPL), twin-engine aircraft training introduces higher speeds, complexity, and the vital skill of handling asymmetric thrust.

Popular Multi-Engine Trainers:
- **Piper PA-44 Seminole:** Reliable, cost-effective, and widely used for CPL training.
- **Diamond DA42 Twin Star:** Modern, fuel-efficient, composite twin with Garmin G1000 glass cockpit, often used in airline cadet programmes.

CESSNA 172 Skyhawk Image Courtesy of : Wiki Commons

Piper PA 28. Cherokee Image Courtesy of : ©Steven Bailey Vla Wiki Commons

South African Context

South African flight schools typically employ a mix of these aircraft, with the Cessna 172 and Piper PA-28 remaining the backbone of basic training. Advanced trainers like the Diamond DA40 and Cirrus SR20 are being integrated to introduce students to modern composite structures, advanced avionics, and fuel-efficient engines. For military training, the South African Air Force uses the Hawk Mk 120 jet trainer and Pilatus PC-7 Mk II turboprop.

Choosing the Right Aircraft

Flight schools and students must consider:

- **Cost:** Operating and maintenance expenses differ widely.
- **Handling:** Some aircraft are more forgiving for beginners, while others suit advanced skill-building.
- **Availability:** Popular trainers ensure access to maintenance, parts, and experienced instructors.
- **Advanced Features:** Modern avionics and safety systems prepare students for contemporary commercial aviation environments.
- **Age / serviceability of aircraft:** Some flight schools have dated aircraft which in itself doesn't pose a safety risk, but if the serviceability is jeopardised by inadequate maintenance the inexperienced pilot can find him or herself in challenging situations.

Most students begin on a Cessna 172 or Piper Archer and gradually progress to aircraft like the Diamond DA40 or Cirrus SR20, building proficiency and confidence along the way.

Diamond DA 40. Image Courtesy of : Wiki Commons

GULFSTREAM EXPANDS SKILLS BASE WITH NEW MESA TECHNICAL TRAINING CENTRE

Second dedicated training hub reinforces Gulfstream's long-term commitment to innovation, workforce development and customer support worldwide.

Since launching the world's first purpose-built business aircraft in 1958, Gulfstream Aerospace Corp. has consistently paired aircraft innovation with strategic investment in people. Now operating a fleet of plus minus 3,000 aircraft globally, the company has opened a new Technical Training Center (TTC) in Mesa, Arizona — a move that underscores its focus on developing skilled technicians to support its growing product line and customer base.

Driven by the belief that aviation fuels business growth, Gulfstream's product family today ranges from the super-midsize G280 to the ultralong-range G800. The Mesa TTC is the second of its kind for the company, complementing the original centre established in Savannah, Georgia in 2015.

The facility spans more than 10,000 square feet of classroom and lab space, offering hands-on training for both new recruits and experienced technicians. Equipped with a Gulfstream G650 fuselage section and empennage, a G700 engine, a G600 simulator and a G200 aircraft, it provides real-world instruction in sheet metal structures, avionics, mechanical maintenance and safety procedures.

"Investing in workforce development and training ensures that with every interaction, our customers receive the industry-leading support Gulfstream is known for," said Lor Izzard, senior vice president of Gulfstream Customer Support. *"The addition of our newest Technical Training Center in Mesa provides even more opportunities for employees to enhance their skills to deliver the highest quality experience and service for our customers."*

The TTC directly supports the newly opened maintenance, repair and overhaul (MRO) facility at Mesa Gateway Airport, which has already created over 300 jobs. Gulfstream is actively recruiting additional personnel, many of whom will undergo initial and recurrent training at the centre.

Gulfstream is also strengthening its talent pipeline through a partnership with Chandler-Gilbert Community College's airframe and powerplant maintenance programmes. Students receive practical training at the TTC, and to date, 40 graduates have been hired by Gulfstream as full-time employees from Chandler-Gilbert college.

With a next-generation aircraft line-up including the G400, G500, G600, G700 and G800, Gulfstream is ensuring that its global customer support capability keeps pace. The new Mesa training centre is a clear investment not just in technology, but in the skilled people who keep Gulfstream aircraft flying safely around the world.

FROM PRIVATE TO COMMERCIAL PILOT: NAVIGATING THE TRANSITION

Turning passion into a profession requires dedication, precision, and the right training pathway.

For many aviators, the private pilot licence (PPL) represents the first great milestone on their flying journey. It allows them to pursue flight for recreation, personal transport, or to share the joy of aviation with family and friends. Yet for those who aspire to build a career in the cockpit, the next step—earning a commercial pilot licence (CPL)—ushers in higher standards, new responsibilities, and the opportunity to fly for remuneration.

This transition is both technical and professional. It demands a shift from flying for enjoyment to meeting the disciplined expectations of the commercial aviation environment.

Legal Privileges and Restrictions

The core distinction between private and commercial certification lies in compensation.

- **Private pilots** may fly for personal or recreational purposes and in some cases support activities such as charity or demonstration flights. They may not, however, receive direct payment for transporting passengers or cargo.
- **Commercial pilots** are authorised to accept payment for a wide variety of aviation services, including passenger and cargo transport, aerial surveys, banner towing, agricultural work, and corporate or charter operations—subject to meeting regulatory requirements.

Professional Standards

Commercial certification demands more than simply building hours. It represents a step up in judgement, discipline, and skill. Training covers advanced manoeuvres, complex aircraft handling, high-altitude operations, and emergency procedures. It also exposes the pilot to multi crew environments, sharing the cockpit workload and flying according to Standard Operating Procedures.

Medical requirements are also stricter:

- In the United States, the Federal Aviation Administration (FAA) requires a second-class medical certificate for compensated flying.
- In South Africa, the Civil Aviation Authority (SACAA) mandates a Class 1 medical certificate for the issue of a CPL.

Transition Requirements: SACAA and FAA Compared

South African Civil Aviation Authority (SACAA):

- Minimum age: 18.
- 200 hours total flight time, of which 100 must be pilot-in-command (PIC).
- This includes:
    - 5 hours PIC at night.
    - 20 hours cross-country time, with one flight exceeding 300 NM and two full-stop landings at different airfields.
    - A night cross-country with three legs of 50 NM each, plus at least 10 night take-offs and landings.
- Must hold a General Radio Telephony Certificate.
- Completion of SACAA CPL theory examinations.
- A Skills Test in a complex aircraft, conducted by a Designated Flight Examiner.
- Application through SACAA with the prescribed fee.

Federal Aviation Administration (FAA):

- Minimum age: 18.
- 250 total flight hours, including:
    - 100 hours in powered aircraft (50 in airplanes).
    - 100 PIC hours (50 in airplanes).
    - 50 cross-country hours (10 in airplanes).
    - 20 hours dual advanced training, plus 10 hours Instrument training.
- Must pass a written knowledge test and a practical checkride with an examiner.
- Requires a second-class medical certificate, renewed annually

Bridging the Gap Efficiently

Aspiring commercial pilots often need to be strategic in building both hours and experience.
Popular methods include:

- Ferry flights, banner towing, sightseeing, or volunteer missions.
- Flight instruction after achieving Flight Instructor status.
- Structured hour-building programmes offered by academies.
- Time-sharing arrangements with other pilots to reduce costs.

Choosing the right flight school also plays a decisive role. Modern fleets, proven safety records, and strong commercial curricula—such as training on the Piper Archer® TX and Seminole—help prepare pilots for professional operations.

Career Opportunities After CPL

A CPL opens the door to a variety of aviation careers, including:

- Flight Instruction: One of the most common and effective routes to build hours.
- Charter and corporate aviation: Flying for corporates, air taxi services, or fractional ownership programmes and contract flying.
- Specialised roles: Agricultural flying, aerial photography, skydiving support, medical transport, or survey operations.

Each provides valuable experience and progression opportunities, often paving the way toward airline employment.

Reaching the Airline Cockpit

For pilots aiming at the airlines, the next step is the Airline Transport Pilot Licence (ATPL)—the highest level of certification.

- FAA (United States): Amongst others requires 1,500 total flight hours, an ATP written and practical test, and a first-class medical.
- SACAA (South Africa): Amongst others applicants must be at least 21, hold a CPL with Instrument Rating, pass six theoretical exams, and maintain a Class 1 medical certificate. The ATPL pilots should also adhere to the hours stipulated in the air law.

Only with an ATPL can a pilot act as pilot-in-command of multi-crew commercial aircraft, after serving as a co-pilot to learn the ropes, this is the standard pathway to airline captaincy.

The journey from private to commercial pilot is a natural progression for those who dream of a professional flying career. It requires commitment, rigorous training, and financial planning, but the rewards are considerable. Whether advancing through charter work, instructing new pilots, or moving steadily toward the airline world, the CPL transforms passion into profession.

For those willing to embrace the challenge, the commercial licence is not just a certificate—it is the gateway to the global aviation industry.

Exterior rendering of the Cessna + Beechcraft © Textron Aviation

TEXTRON AVIATION DRIVES WORKFORCE GROWTH WITH WSU TECH EXPANSION

Investment in Wichita facility aims to shape the next generation of aviation professionals

Textron Aviation is taking a decisive step to secure the future of aviation by investing in the expansion of Wichita State University's WSU Tech aviation training programs. As the lead contributor to a new facility at the National Center for Aviation Training (NCAT) campus in Wichita, Kansas, the investment reflects Textron Aviation's enduring commitment to developing the next generation of aviation talent.

The NCAT expansion will add approximately 85,500 square feet of instructional space, designed to accommodate an additional 1,450 students and trainees within its first three years. The new facilities will include dedicated centres for emerging aviation technologies, advanced manufacturing, professional pilot training, and a high school Aviation Maintenance Technology Academy. A key feature will be a fully equipped hangar, which WSU Tech will name the Cessna + Beechcraft by Textron Aviation Hangar in recognition of Textron Aviation's support.

Construction is set to begin this month, with operations expected to commence in January 2027. The facility will also serve as a hub for industry partners seeking to train and upskill their workforce, ensuring employer readiness across the United States.

"Textron Aviation's gift underscores our ongoing commitment to developing a highly skilled workforce and supporting the long-term growth of the aviation industry," said Ron Draper, president and CEO of Textron Aviation. *"WSU Tech graduates are an essential part of our talent pipeline, and this expansion ensures more students are prepared to join us in designing and delivering the best aviation experience for our customers."*

Maggie Topping, senior vice president of Human Resources & Communications at Textron Aviation, added: *"As a launchpad for the next generation of industry leaders, this expansion is an investment in our future. Textron Aviation is honoured to support an initiative that cultivates talent through high-quality training and encourages students to achieve their dreams."*

Dr. Sheree Utash, president of WSU Tech, said: *"This gift from Textron Aviation reflects a shared vision to grow and sustain Wichita's position as a global leader in aviation. Together, we are investing in the next generation of technical talent and strengthening the workforce pipeline that powers our region's economy."*

Through this initiative, Textron Aviation continues to reinforce its dedication to equipping future aviation and manufacturing professionals with world-class training and development opportunities.

Aspiring aviation professionals interested in joining Textron Aviation's growing workforce can explore opportunities at txtav.com/careers or visit the Career and Learning Center at Suite 400, 293 S. Greenwich Rd, Wichita, Kansas 67206.

AIRLINK JET DONATION TAKES LEARNING TO NEW HEIGHTS

By Linden Birns

Decommissioned ERJ135 to give Gauteng learners hands-on aviation training and inspire South Africa's next generation of engineers and pilots

South Africa's aviation sector received a significant boost when Airlink donated a decommissioned Embraer ERJ135 regional jet to the Gauteng Department of Basic Education (DBE). The aircraft, now stationed at the Rhodesfield Engineering School of Specialisation (SOS) in Kempton Park, is more than just a static exhibit — it is being transformed into a dynamic training hub for the country's next generation of aviators.

For Rhodesfield learners, many from low-income communities such as nearby Tembisa, the aircraft represents an unprecedented opportunity: to step inside a real jet, to handle its systems, and to gain practical insight into the world of aviation.

Caroline Ngxanga, Acting Principal of Rhodesfield Engineering SOS, summed up the excitement: *"The aircraft will be an invaluable teaching aid for our Grade 11 and 12 learners taking aviation as their eighth matric subject. This year we have 45 learners — 13 girls and 32 boys. For most of them, this is their first meaningful step into aviation."*

Dr Namhla Tsetu

Lesufi and learners with donated Airlink plane

Addressing South Africa's Skills Shortage

The donation arrives against the backdrop of a growing skills crisis. According to the 2023/2024 South African Civil Aviation Authority (SACAA) report, there are 6,504 licensed Aircraft Maintenance Engineers (AMEs) in the country. Yet the global aviation industry will require at least 710,000 new aircraft technicians over the next two decades.

Airlink itself employs 194 AMEs, but currently has vacancies for 20 more. Its AME apprenticeship programme accommodates 32 apprentices, with capacity for nearly 40 additional trainees.

Dr Namhla Tshetu, Airlink's Executive Manager: Corporate Services, explained why the airline believes educational investments are so critical: *"There is a national crisis in education, such that Airlink struggles with hiring and retaining employees with scarce and critical skills. Many learners from low-income communities face barriers such as a lack of resources and facilities. By exposing them to aviation early, we can spark curiosity and inspire them to pursue the right subjects — building a pipeline of future talent."*

The LINK by Airlink – Nurturing Talent Early

The Rhodesfield initiative complements Airlink's flagship corporate social investment programme, The LINK by Airlink. Since 2016, The LINK has identified academically strong learners in disadvantaged communities and mentored them over three years of high school. The programme encourages subject choices aligned with STEM (science, technology, engineering and mathematics), offers aviation career awareness, and provides bursaries for tertiary education.

Unlike mass recruitment drives, The LINK is selective, trackable and impact-driven. Learners are introduced to aviation in a practical, engaging way that demystifies STEM subjects and positions aviation as an attainable career. By involving schools and guardians, Airlink ensures that each participant is supported both academically and socially, with a view to long-term success.

Dr Tshetu added: *"From our experience, the introduction to aviation programmes currently available are often not aligned with airline needs or learner capabilities. With The LINK, and now with Rhodesfield, we are shaping a sustainable, merit-based pipeline of future aviation professionals."*


Airlink Executive Manager Samuel Mampshika

Turning a Jet into a Classroom

The ERJ135 donated by Airlink is no ordinary teaching tool. Delivered new to the airline in 2013, the 37-seat jet chalked up 32,080 flight hours and more than 30,100 flights. Its roomy cabin, accessible systems layout and twin Rolls-Royce AE 3007/A3 turbofans make it an ideal training platform.

Although some components were removed for continued use in Airlink's fleet, the airline has committed to supplying additional parts over time, ensuring that learners have access to authentic systems, structures and components for hands-on study.

The Role of the Technicians

To bring the project to life, Airlink is sponsoring the two-year placement of two female aircraft maintenance technicians, both of whom completed their apprenticeships through the airline. They will bridge the gap between theory and practice, helping learners move beyond textbooks and into applied learning.

Samuel Mampshika, Airlink's Executive Manager: Responsible Person Aircraft, emphasised their impact: *"Our technicians have nearly 3,000 hours of experience as apprentices. They'll guide learners through the basics of aviation maintenance, from safety practices and documentation to systems inspection and engine servicing. This transforms the aircraft into a real, functioning classroom."*

The technicians will collaborate with the Gauteng Department of Education to align their lessons with the existing syllabus, tailoring it to Grade 10 and 11 learners.

The curriculum will cover subjects such as:

- Workshop and aircraft documentation
- Airframe and landing gear inspection
- Flight control and hydraulic systems
- Fuel systems, batteries and propellers
- Sheet metal work and engine inspection
- Gas turbine engine servicing, testing and ground runs
- Non-destructive testing methods
- Human factors in aviation safety

Practical exposure will include safety wire locking, aircraft walkarounds, disassembly and reinstallation of components following maintenance manuals, and demonstrations of non-destructive inspection techniques.

Just as importantly, the technicians will act as mentors, sharing their career journeys and highlighting training pathways beyond matric. Whether learners dream of becoming technicians, pilots, or flight attendants, the exposure provides a roadmap to entry into the aviation industry.

Beyond Rhodesfield

Gauteng's MEC for Education and Sports, Arts, Culture and Recreation, Hon. Matome Chiloane, described the *donation as a "game-changer" for the province: "The aircraft, generously donated by Airlink, will provide Rhodesfield Engineering SOS learners with invaluable, hands-on experience to complement their classroom learning. It will also be incorporated into specialised programmes, including Search and Rescue training and multi-certification courses, equipping students with skills for a wide range of high-demand careers."*

Crucially, the impact will not be confined to Rhodesfield. Learners from other schools in Gauteng will also have access to the aircraft for experiential training, broadening the reach of the initiative.

A Long-Term Investment

Airlink CEO, de Villiers Engelbrecht, positioned the project as part of a long-term commitment:
"By placing a real aircraft in learners' hands and providing qualified engineers as trainers, we can bridge the gap between theory and practice. This is how we build South Africa's aviation future — by ensuring that young people, regardless of their background, have the chance to discover and pursue careers in this industry."

For the learners of Rhodesfield Engineering SOS, the Airlink jet stands as both a practical training tool and a powerful symbol of possibility. It embodies the idea that with the right exposure, mentorship and support, South Africa's youth can take their place in the skies — not just as passengers, but as the engineers, technicians and pilots who keep aviation moving.

SIMULATORS, SKILLS, AND THE FUTURE OF BUSINESS AVIATION

How innovation, training, and diversity are shaping the next generation of aviation professionals.

By Dawit Lemma

Image Courtesy of ©Pexels

When we talk about the future of aviation in Africa and beyond, the conversation inevitably turns to one word: training. The global simulator market alone is set to soar to nearly $20 billion by 2030, reflecting not just airline growth but an urgent need across Business and General Aviation (BA/GA). For years, BA/GA operators lagged behind airlines in simulator access—pilots often had to travel vast distances just to meet recurrent training requirements. Today, training companies such as FlightSafety International and CAE are investing heavily in expanding to meet the growing needs of operators and owners.

In addition, these training centres are no longer just sites for providing pilot type ratings; they are platforms for bespoke, scenario-based training—short-field operations, mountain approaches, or austere airstrips—that mirror the realities of missions in Africa and the Middle East.

What excites me most is the increased access to training technology. Compact Virtual Reality (VR) and Fixed-Training Devices, FTD, now supplement full-flight simulators, offering early familiarization with flight decks and practice environments to enhance access to final type ratings. Finally, pilots and crews in developing regions can train safely, efficiently, and closer to home – a leap that could transform BA/GA growth.

But improved access to training alone does not solve the problem. The global demand for skilled aviation professionals is unprecedented. Boeing projects 660,000 new pilots and over 700,000 technicians will be needed over the next two decades, with Africa alone requiring around 76,000 personnel. Business aviation competes in this limited talent pool, often without the visibility or allure of large airlines. Training centres, airlines, and operators must support capacity expansion, while recognizing the particular requirements of BA/GA realities: smaller teams, high client expectations, and flexible mission profiles. For pilots, engineers, and controllers alike, this is a race against time.

Technology is reshaping how we run this race. VR, Augmented Reality, AR, and Artificial Intelligence, AI are all increasingly integrating into pilot training.

Regulators such as EASA and the FAA are recognising VR-based devices for partial credit. A Phenom 300 crew, for instance, can practise night operations into a remote African airstrip without leaving the training centre. Technology is enabling de-briefing tools to flag deviations automatically, pinpoint risk trends, and instill the competency-based ethos ICAO champions. For BA/GA, where fleet sizes are small and missions highly customised, this flexibility is transformative.

Globally, aviation training centres are evolving to match these demands. FlightSafety International and CAE continue to set the standard, expanding portfolios and footprints in Europe, the Middle East, and beyond. In Africa, institutions such as Ethiopian Aviation University are broadening programmes to include BA/GA-specific curricula, while ATNS' Aviation Training Academy in South Africa is producing Air Traffic Control professionals whose work ensures BA/GA flights operate safely and efficiently. For operators, the lesson is clear: seek centres with OEM (original equipment manufacturer) alignment, evidence-based training, and strong safety cultures – they define world-class capability.

Yet, we cannot ignore the workforce gap without addressing diversity. Women represent less than 6% of licensed pilots worldwide, and minority participation remains low. Organisations like Women in Aviation International and Women in Corporate Aviation are making inroads with scholarships and mentorship programmes. Here in Africa, AfBAA and partners are championing inclusive pipelines, encompassing pilots, dispatchers, engineers, and cabin crew. Diversity is not merely aspirational; it is a practical solution to the talent crunch, strengthening the resilience of aviation operations.

Air Traffic Control training is another critical piece. As airspace complexity grows –Remotely Piloted Aircraft System, RPAS integration, Performance Based Navigation, PBN procedures, higher traffic volumes –Air Traffic Controllers, ATCOs must be prepared. Training centres such as ATNS and EAMAC are leading in high-fidelity, scenario-based instruction, enabling BA/GA operators to benefit from safer routings and predictable schedules. Public-private collaboration, championed by AfBAA, ensures BA/GA interests are represented in policy and funding decisions – a necessity if the industry is to scale sustainably.

Sustainability is now inseparable from training. BA/GA operators face rising scrutiny from regulators, clients, and financiers alike. Curricula now include Sustainable Aviation Fuel, SAF handling, emissions reduction, and ESG reporting. NBAA's Sustainable Flight Department Accreditation and ICAO's ACT-SAF programme are guiding BA/GA flight departments and African stakeholders alike in navigating the green transition. The workforce we train today will be the leaders of environmentally responsible aviation tomorrow.

Career pathways in BA/GA are diverse but often opaque. Pilots, engineers, dispatchers, and cabin attendants each have tailored routes – from IS-BAO/IS-BAH familiarisation to NBAA Professional Development Programmes. Operators must sponsor, mentor, and guide young professionals, showing that BA/GA is not a sideline to airlines – it is a world of opportunities in its own right. Maintenance engineers, the backbone of our operations, require bespoke training for low-volume, high-customisation fleets. Without them, aircraft do not fly, not for lack of passengers, but for lack of technicians.

The challenge is immense, but so is the opportunity. For BA/GA, workforce and training are existential issues. The simulators we build, the technology we embrace, the diversity we encourage, and the partnerships we forge will determine whether African and global business aviation can meet rising demand. At AfBAA, we are doubling down on training and safety culture, ensuring that BA/GA is not left behind. The chance is here to build an inclusive, resilient, and future-ready aviation workforce—one capable of sustaining growth for decades to come.

PC12 FSTD: ANOTHER FLIGHT SIMULATOR DEVELOPED IN SOUTH AFRICA FOR SOUTH AFRICA, AFRICA AND THE WORLD – **"LOCAL IS LEKKER"**

By Alfredo Schulz

Simuflight has been considering the addition of a type specific PC12 flight simulator to their facility in Midrand, South Africa, for many years. The rationale being very simple, the standard of initial and ongoing training for crews would benefit from the use of simulation because the PC12 is a complex High Performance Aircraft (HPA). Improving the standard of initial and ongoing training automatically contributes to and enhances operational flight safety of the aircraft type. This idea turned into reality in January 2023 when Aviamech, Simuflight's Midrand co-located sister company focused on simulation engineering, acquired the cockpit section of an airframe that was damaged beyond repair.

The project to design, develop and manufacture a type specific PC12 flight simulator locally was finally born. A flight simulator, whether with or without motion systems, is also referred to as a Flight Simulation Training Device or FSTD for short.

For Aviamech, with a local track record in the simulation engineering business going back to 1995 and spanning 38 FSTD's, undertaking the PC12 project was a logical fit into its activities.

The PC-12 has been a highly successful aircraft with over 2,000 deliveries made as of May 2023 since its introduction in 1991. Over time it evolved into 4 versions

- The original legacy PC12 introduced in 1991 that had a traditional cockpit layout with EFIS and digital engine display.
- From 2006 the PC12NG (Next Generation), receiving a more powerful PT6A-67P engine and a full glass Honeywell Primus Apex flight deck
- From 2019 the PC12 NGX, receiving another increase in power through the FADEC controlled PT6A-67P engine as well as autothrottle and additional flight deck technology.
- From 2025 the PC12 PRO, equipped with a Garmin

GFID3 suite that includes Garmin Autoland.

With a clear priority of the shortest possible project timeline to fast track entry into service the decision was taken to build a legacy PC12/47 type specific FSTD with provision for an upgrade path to later variants engineered in from the get-go.

Like all the projects before it at Aviamech, the PC12 project has and is going through its phases with Aviamech's team of South African trained and qualified engineers and technicians locally. In broad terms they are:

- CAD 3D Model based system and component design
- Component manufacture in collaboration with a local supply chain
- Assembly and integration
- Software and Firmware development
- Flight model development and tuning
- Installation
- Objective and subjective testing and evaluation
- Qualification with SACAA under Part 60's FSTD-A technical standards

Now in its penultimate project phase of objective and subjective testing and evaluation the FSTD equipped with a 250 degree horizontal field of view continuous, panoramic and seamless visual system is planned to enter service in September 2025 to an eager reception by a host of Simuflight clients operating the aircraft type.

In and amongst the 38 FSTD's built and delivered to date Aviamech has completed a broad variety of similar unique type specific flight simulator projects with OEM collaboration where necessary. Amongst them are:

- Vulcanair P68R
- Cirrus SR22
- Cessna C208B Caravan
- Beech 1900D
- Beech King Air 200
- BAE Jetstream 41
- Bell B222UT
- Bell B206 Jet Ranger
- Robinson R44

"Local is Lekker" embodies a big advantage for the Southern African aviation training industry through Aviamech. The company is unique on the continent in that it has the full capability to locally produce proven simulators like their Piper Seneca FNPT II/MCC to order or develop customer centred bespoke simulation solutions. The engineering team includes aeronautical, mechanical, and computer engineers qualified from South African universities as well as locally trained and qualified electronic and mechanical technicians enabling the company to be self-sufficient in all technical aspects.

Component manufacture is also undertaken in South Africa thereby supporting local industry as far as possible. FSTD acquisition and life cycle costs are valued in South African Rands and are backed by 30 years' experience in the South African and African environment. This means that costs are substantially lower when compared to imported FSTD's and less susceptible to exchange rate fluctuations. Coupled to that clients are supported from Aviamech and Simuflight's co-located facilities in Midrand translating into personalised, quick and efficient maintenance and support turnaround times that keep simulator downtime to a minimum.

Images Courtesy of ©SIMUFLIGHT


Image Courtesy of © Garmin

GLASS COCKPITS FOR THE NEXT GENERATION

From retrofits in Cessnas to advanced courses, Garmin's systems are shaping a familiar and consistent learning experience for pilots worldwide.

Garmin's Latest Developments in Avionics

Garmin has been at the forefront of modernising general aviation cockpits with its suite of avionics systems. The G1000 NXi, a significant upgrade from the original G1000, offers faster boot times, enhanced map rendering, and improved situational awareness features. This system is now available for retrofit in various aircraft, including the Cessna 172, 182, and 206 models, through Supplemental Type Certificates (STCs) .

Additionally, Garmin has introduced the GWX 8000 StormOptix Weather Radar, which provides advanced weather detection capabilities and is compatible with the GTN Xi navigators and TXi flight displays .

Retrofitting Garmin Systems into Preferred Training Aircraft

Retrofitting older aircraft with Garmin's latest avionics systems enhances training environments by providing students with exposure to modern cockpit technologies. For instance, upgrading a Cessna 172R or 172S to the G1000 NXi allows students to train on a glass cockpit, preparing them for the avionics systems commonly found in commercial aviation .

These upgrades not only improve situational awareness but also standardise training across various aircraft platforms, making transitions between different aircraft smoother for students.

Training Required to Operate Garmin Systems

Operating Garmin's advanced avionics systems requires specific training to ensure pilots can fully utilise the systems' capabilities. Garmin offers a range of training options, including:

- **eLearning Courses:** Self-paced online courses covering topics like the GTN Essentials and G1000 NXi systems. These courses are designed to be informative and are eligible for FAA WINGS credit .
- **Instructor-Led Training:** Garmin provides live, instructor-led courses conducted via platforms like GoToMeeting. These sessions offer interactive learning experiences and are ideal for pilots seeking a more structured training environment .
- **Hands-On Workshops:** For those looking for practical experience, Garmin and other aviation organizations offer workshops where pilots can practice using the avionics systems in a controlled setting.

Garmin familiarisation courses can also be done through accredited flight schools in South Africa as a stand-alone course or be combined with a RNAV course, providing the flight school has a flight simulator that is Garmin capable.

Importance of Training on Retrofitted Systems

Training on retrofitted Garmin systems is crucial for several reasons:

- **Familiarity with Modern Avionics:** As more aircraft are equipped with Garmin's systems, being proficient in their operation becomes essential for pilots.
- **Enhanced Safety:** Understanding and utilizing the advanced features of Garmin's avionics can improve situational awareness and decision-making, leading to safer flight operations.
- **Career Advancement:** Many commercial operators use Garmin-equipped aircraft. Proficiency in these systems can make pilots more competitive in the job market.

Widely adopted Across Flight Instruction Platforms

While Garmin's avionics systems are becoming increasingly prevalent in general aviation, the term "standardisation" should be used with caution. Garmin's systems are widely adopted, but other avionics manufacturers, such as Avidyne and Aspen Avionics, also have a significant presence in the market. The choice of avionics often depends on factors like aircraft type, intended use, and personal preference.

SAAB INTEGRATES AI 'CENTAUR' INTO GRIPEN E IN MILESTONE FLIGHTS

Project Beyond showcases AI-enabled combat and rapid software adaptability.

Image Courtesy of © SAAB

Saab, in collaboration with Helsing, has successfully flown its AI agent 'Centaur' aboard a Gripen E fighter jet, marking a breakthrough in military aviation. The first flight on 28 May, part of Project Beyond, demonstrates how AI can now take to the skies alongside pilots.

AI Takes Control in Combat Scenarios

During the flights, Centaur autonomously executed complex manoeuvres in a Beyond Visual Range (BVR) combat environment, cuing the pilot to fire. The milestone highlights Gripen E's ability to rapidly integrate AI software without compromising safety.

"*This achievement demonstrates our qualitative edge in sophisticated technologies,"* said Peter Nilsson, Head of Advanced Programmes, Saab Aeronautics Business Area. "*The swift integration and successful flight testing of Helsing's AI in a Gripen E shows the accelerated capability gain our fighter can deliver. We continue to explore how AI agents can enhance performance faster than opponents can adapt."*

Software Power, No Limits

Gripen E's unique design allows AI software to fly fully integrated onboard, removing the need to operate only on military test ranges or experimental X-planes. Nilsson explained: "*Within Project Beyond, we use software to rapidly explore and blur the lines between 'now' and the future; in software there are no generations, only speed."*

Testing AI Against Real Aircraft

The third flight on 3 June focused on Centaur's adaptability, pitting it against a Gripen D in dynamic BVR scenarios. Using real-time sensor data, the team varied distances, speeds, and aspects—and even disabled command and control data—to assess it's robustness.

Project Beyond: Preparing for the Future

Saab and Helsing's Project Beyond team is advancing trustworthy AI for future threats. Flight data will be analysed to enhance Centaur's BVR performance, with more flights planned throughout the year. The programme is fully sponsored by the Swedish Defence Material Administration (FMV) as part of the Swedish Concept programme for Future Fighter Systems.

Saab continues to push the boundaries of defence and security technology, helping nations keep people and societies safe. Headquartered in Sweden, Saab employs 25,000 people globally and develops advanced systems in aeronautics, weapons, command and control, sensors, and underwater systems.

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INTELLIGENCE TAKES FLIGHT IN AIR TRAFFIC MANAGEMENT

From control towers to satellites, AI is quietly reshaping how the skies are managed, promising safer, smoother, and smarter aviation.

For decades, air traffic controllers have been the unseen guardians of our skies. In bustling control towers and across radar screens worldwide, these professionals orchestrate the movements of thousands of aircraft every day, ensuring safety and order in an increasingly crowded airspace. Yet even the most experienced controller faces limits when confronted with the growing demands of modern aviation. Enter Artificial Intelligence—an emerging partner in the complex dance of air traffic management (ATM).

AI is no longer a distant concept. Across the globe, companies are developing systems that blend human expertise with machine precision. NoamAI, for example, has unveiled a patent-pending system that monitors flight paths, aircraft positions, and voice communications in real time. Its predictive models provide controllers with actionable insights, allowing them to anticipate conflicts before they occur and make decisions faster than ever.

Meanwhile, Airspace Intelligence is bringing predictive power to airspace flow management. Its Flyways AI platform simulates future airspace conditions, revealing potential congestion points and enabling traffic managers to adjust routes proactively. Such foresight can reduce delays, smooth bottlenecks, and ultimately make air travel more reliable for passengers and airlines alike.

Thales Group is taking a broader approach, embedding AI, big data, and intelligent sensors across its ATM solutions. From civil airports to military airspace, these technologies provide flexibility, efficiency, and resilience, helping operators adapt to sudden changes, whether due to weather, traffic surges, or unforeseen disruptions

In Europe, EUROCONTROL is leveraging AI to transform decision-making itself. Through a suite of digital tools, it optimizes the use of airspace and runways, improves flight planning, and enhances traffic predictions. The aim is not to replace controllers but to empower them with insights that were previously impossible to glean from radar and manual calculations alone.

Across the Atlantic, Leidos' SkyLine-X™ system demonstrates AI's potential to dynamically manage traffic from takeoff to landing. By adjusting flight paths in real time, the system can reduce delays, enhance safety, and lower environmental impact Collins Aerospace, Enhanced Radar, and TAV Technologies are all developing complementary AI solutions, from predictive maintenance analytics and global surveillance to integrated airport management systems, further embedding AI into the core of air traffic operations.

Even the cockpit is not untouched. Archer Aviation is experimenting with AI-powered flight manuals for its

eVTOL aircraft, providing pilots with instant access to critical guidance, a modern evolution of the traditional quick-reference handbook. And Aireon's satellite-based global surveillance system ensures that aircraft are visible even beyond the reach of ground-based radar, extending safety and situational awareness to the most remote corners of the planet.

The common thread across these technologies is collaboration. AI is not replacing human controllers but amplifying their capabilities, providing insights, predictions, and decision-support that were once impossible. As these systems evolve, the vision of a safer, more efficient, and adaptable air traffic management network becomes increasingly tangible.

From predictive traffic flow to autonomous planning, AI is quietly taking flight, redefining the invisible infrastructure that keeps our skies safe. For air traffic management, the future is no longer just about human skill or machine computation—it is about the synergy between the two, navigating the ever-growing complexity of global aviation.

Image Courtesy of © Lockheed Martin

ENTERING THE RING: **AI FIGHT CLUB™**

Lockheed Martin's high-stakes arena tests the US's most advanced AI, fast-tracking innovation to keep warfighters one step ahead.

In modern warfare, every decision can be measured in nanoseconds. To stay ahead, US warfighters need artificial intelligence that is fast, reliable, and battle-ready. Enter Lockheed Martin's AI Fight Club™, a head-to-head competitive environment designed to accelerate the development and operational deployment of AI systems for national defence.

A Proving Ground for the US's Best AI

AI Fight Club™ uses Lockheed Martin's synthetic environment to simulate realistic scenarios across air, land, sea, and space. The competition gives teams from industry and academia the chance to test AI models against rigorous US Department of Defence (DoD) standards. Winning models prove their robustness, reliability, and readiness for integration into future defence operations.

"Events like AI Fight Club™ bring together industry, academic, and government experts in a collaborative environment that fosters innovation, identifies vulnerabilities, and informs the development of advanced AI systems to enhance national security," said John Clark, Lockheed Martin's senior vice president of Technology and Strategic Innovation.

How It Works

The competition is structured as a head-to-head bracket, where teams showcase their AI systems in complex, mission-focused scenarios. Key elements include:

- Teams of experts from industry and academia competing directly against each other.
- Government representatives and spectators observing and engaging with competitors.
- Scenarios designed to mirror real-world operational challenges, such as coastal defence against amphibious assault, airborne operations in contested environments, layered homeland defence, and space-based surveillance and reconnaissance.
- Performance evaluations determine the winning team, which receives the championship title and recognition as the top AI performer.

Top teams also have the opportunity to publish and present their research, showcasing innovations that push the boundaries of AI for US defence.

In a rapidly evolving threat landscape, AI Fight Club™ sets the benchmark for identifying the AI technologies that will keep the United States and its allies ahead of emerging challenges.

RUSSIA EXPANDS UAV EXPORT RANGE

Combat-proven Orlan and KUB systems fuel growing international demand.

By Yury Laskin

Since February 2022, Russia has steadily ramped up production of its unmanned aerial vehicle (UAV) systems to meet both domestic military orders and growing requests from international customers.

Alexander Mikheev, CEO of Rosoboronexport, confirmed that the company is also prepared to facilitate UAV production at facilities in allied nations, highlighting a strategic push to expand the global footprint of Russian UAV technology.

Orlan Family: Battlefield Reconnaissance

The Orlan UAV family remains one of the most popular and combat-proven systems in Russia's portfolio. Recently showcased at LIMA 2025 in Malaysia, the Orlan-10E and Orlan-30 systems demonstrate versatility and operational sophistication.

The Orlan-10E is optimised for battlefield observation and surveillance. Operators control the UAV from secure zones while gathering intelligence for own-force channels, or even providing target designation to third parties. Equipped with gyro-stabilised optoelectronic cameras, including infrared and thermal imaging capabilities, the system can detect recently moved equipment and active weapon systems.

The latest Orlan-10E offers wing spans of (3.2–3.8 m), a remote-controlled range of 120 km, autonomous operation of up to 500 km, flight durations of 10 to 16 hours, and a ceiling of 5,000 meters. Optional modules include laser transmitters for enhanced operational capabilities.

The Orlan-30 system is a multifunctional setup consisting of UAVs, launch catapults, spare parts, accessories, and a ground remote control station (GRCS). The GRCS supports up to two operator workstations, autonomous power, and secure

Orlan-30 and Orlan-10 UAV at the Army-2024 Forum ©LAGUK-Media

KUB-2E at IDEX-2025 ©LAGUK-Media

communication networks, including Internet-enabled protected connections.

The UAV itself has a wingspan of 3.9 m (I got 3.1 m), an operational altitude of up to 4 km and airspeeds ranging from 90–170 km/h. Take-off weight is 40 kg with a 6 kg payload capacity. Capable of operating in wind speeds of 10–20 m/s, it can perform optical, radio, and infrared reconnaissance, patrol missions, topographic surveys, and search-and-rescue tasks. Its temperature range extends from -30°C to +40°C. The system's payload includes high-resolution visible-spectrum cameras, thermal imagers, and laser rangefinder-designators for precise targeting and intelligence gathering.

Mikheev reports that the Orlan family is operational in over 20 countries, with demand strongest in the Middle East, Southeast Asia, Africa, Latin America, and CIS nations, driven by proven battlefield efficiency at tactical levels.

KUB-E Loitering Munition: Precision Strike Capability

Another high-demand system is the KUB-E guided munition family, first introduced internationally at IDEX 2019 with the latest variants showcased at IDEX 2025.

The KUB-E performs high-precision strikes against land and maritime targets. With a wingspan of 1.21 m, length of 0.95 m, and a 3 kg payload, it can neutralise infrastructure, armoured vehicles, and personnel targets using a silent flight and vertical descent attack mode. Loitering times reach up to 30 minutes, with speeds up to 130 km/h, enabling flexible targeting in day or night operations and adverse weather.

The KUB-2-E series expands the operational range:

- Small-class KUB-2-E targets enemy infantry and unarmoured vehicles, ideal for precise battlefield engagements.
- Medium-class KUB-2-E can strike personnel, UAV launch positions, helicopter landing zones, and lightly armoured vehicles. Both feature advanced electro-optical guidance, operate in complex conditions including smoke and dust, and resist active and passive electronic countermeasures.

The KUB-SM system integrates reconnaissance and strike functions on an armoured vehicle platform, housing multiple loitering munitions and reconnaissance drones. Capable of mobile operations, it can target radars, air-defence sites, rear facilities, UAV launch sites, and open-airfield aircraft.

Expanding Global Reach

Rosoboronexport continues to actively promote these UAV systems internationally. "New contracts are being signed," Mikheev notes. The combination of battlefield-proven efficiency, tactical versatility, and advanced reconnaissance and strike capabilities has positioned the Orlan and KUB families as sought-after assets across multiple continents.

The PA474 Lancaster of the Battle of Britain Memorial Flight soared once again, escorted by a Spitfire IIa and a Hurricane IIc.

RIAT 2025: A VISUAL FEAST OF AVIATION EXCELLENCE

By WAN UK Correspondent & Photographer Stuart Haigh

The Royal International Air Tattoo returned to RAF Fairford in July 2025 with a record-breaking showcase of military, historic, and experimental aircraft, once again confirming its reputation as the world's largest military airshow. More than 175,000 visitors gathered over three days to witness aerial artistry, precision engineering, and international aviation diplomacy at its finest.

Stuart Haigh's lens captured the global spectrum of aviation on display, from warbirds steeped in history to next-generation aircraft redefining airpower.

Classic Icons and Farewell Flights

Among the crowd favourites was 4479 – C-130H of the Pakistan Air Force, a 52-year-old Hercules still flying strong with special anniversary markings. From Europe, the Royal Danish Air Force's F-16AM (E-006) gave its final UK airshow appearance, leaving behind spectacular vortex trails in the damp morning air before the type's retirement in favour of the F-35A Lightning II.

Heritage displays underscored RIAT's historical roots. The PA474 Lancaster, escorted by a Spitfire IIa and Hurricane IIc, represented the Battle of Britain Memorial Flight, while the XE688 Hawker Hunter T.72 reminded spectators of the elegance of 1950s jet design. Even rarer was the Fiat G-91R/1A, the world's only airworthy example, dazzling in Frecce Tricolori colours.

New Technology & RAF Innovation

One of the most anticipated debuts was the RAF's Wedgetail AEW Mk1 (WT001), converted from a Boeing 737-700 to perform airborne early warning and control.

Its flypast with the Red Arrows symbolised the blending of tradition with innovation, while pointing to the RAF's future surveillance capabilities.

Other highlights included the Czech Air Force W-3A Sokol helicopters (0713, 0714) performing a dynamic search and rescue demo, and Finland's HN417 F/A-18C Hornet roaring through the skies with sheer power.

Global Spectrum of Military Aviation

The "Eyes in the Skies" theme was reflected in the strong international presence.

- France contributed a Boeing E-3F Sentry, representing airborne command and control.
- Canada's CP-140 Aurora and the USAF RC-135W Rivet Joint highlighted ISR (intelligence, surveillance, reconnaissance) missions.

555 MIRAGE 2000 5BG HELLENIC AF

- Qatar brought both a C-17A Globemaster III in Qatar Airways livery and an AH-64 Apache, while Pakistan showcased a full line-up including the JF-17C Thunder and IL-78MP tanker.
- The Egyptian Air Force's Antonov AN-74T made history as the first Egyptian aircraft at RIAT, marking the 59th nation to participate.

Rotary aviation was also in focus, from Hungary's Airbus H225M to Spain's S-76C, while the UK demonstrated border patrol operations with the Home Office DHC-8-106ISR.

International Display Teams & Aerobatic Flair

No tattoo would be complete without aerial artistry. Italy's Frecce Tricolori painted the skies in national colours to the strains of Pavarotti, while New Zealand's RNZAF Boeing 757 (NZ7572) impressed with agility uncommon for a VIP transport.

The U-2S Dragon Lady—a reconnaissance legend rarely seen in public—made a dramatic flying display, while a beautifully restored Supermarine Spitfire FRXIVe (G-SPIT) connected the modern with the historic.

A Living Aviation Museum in Motion

From the restored Lockheed 12A Electra Junior to the Italian MB-326E trainer, the static and flying displays offered enthusiasts a moving museum of global aviation. With more than 26 nations represented and nearly 200 aircraft on show, RIAT 2025 delivered scale and spectacle unmatched anywhere else in the world.

As Stuart Haigh's photos testify, this year's Royal International Air Tattoo was more than an airshow—it was a living chronicle of aviation past, present, and future. RAF Fairford once again proved itself the global hub of aviation excellence, where heritage and innovation meet in the skies.

4479 – C-130H Pakistan AF

140117 CP140 R Canadian AF

IAMIC G91 Private

74 H225 Hungarian AF


QA124 AH64 Qatar Emiri AF

HH4 MD500E FINNISH ARMY

801094 U2S USAF

3 x Polish AF F-16

HN417 FA-18 Finnish AF

9234 JAS39C CZECH AF

23323 JF17C PAKISTAN AF

TRADE MEASURES ARE TESTING AVIATION WORKFORCE RESILIENCE

The recent imposition of a 39% import tariff on Swiss goods by the U.S. government has sent shockwaves through the global aviation sector, highlighting the vulnerability of international supply chains and raising questions about job security across the industry.

Image credit © Freepik

Swiss aircraft manufacturer Pilatus Aircraft announced on 8 August 2025 that it would temporarily suspend deliveries of its PC-12 turboprop and PC-24 light jet to the United States, a market that typically accounts for around 40% of the company's annual output. "The new customs tariff imposed by the U.S. authorities represents a significant competitive disadvantage for Pilatus," the company stated. The halt, although temporary, underscores the immediate human impact of international trade policy on aviation employment.

The Stans-based manufacturer, which employs 3,000 staff, has pledged to safeguard its workforce but has warned that short-time working hours or workforce adjustments through natural attrition may become necessary if the tariff environment persists. Pilatus is also accelerating plans to establish a U.S. assembly facility in Sarasota, Florida, a strategic move that could shield the company from tariff pressures while maintaining production momentum.

Global Ripple Effects

European manufacturers outside the EU, particularly smaller OEMs, are acutely exposed, while regional airlines face higher operating costs and softening demand for transatlantic travel. Data indicates that bookings from European hubs to the U.S. have already dropped 12–13% this summer, with major airports seeing declines of up to 23%.

In Africa, airlines and MRO providers reliant on U.S. or European parts confront increased costs and delivery delays, squeezing already tight margins. Meanwhile, Asian hubs such as Singapore face mixed outcomes: tariff-related disruptions could reduce cargo and passenger volumes, yet the city-state's neutral position allows some opportunities for rerouting shipments and capturing market share from competitors.

Workforce Implications

Across the aviation sector, the impact on jobs is already apparent:

- OEMs may experience production slowdowns, prompting temporary layoffs or reduced hours for assembly line and engineering staff.
- Airlines could defer hiring, reduce training intakes, or adjust flight schedules, affecting pilots, crew, and ground personnel.
- MRO and aftermarket service providers face uncertainty as delayed deliveries and tariff-driven costs disrupt planning and staffing.

Depreciation Tax as a Strategic Cushion

Pilatus' U.S. assembly plant illustrates how tax policy can mitigate workforce risk. Accelerated depreciation and other U.S. investment incentives provide a short-term tax shield, allowing Pilatus to offset tariff-related costs, preserve cash flow, and maintain employment in Switzerland while expanding U.S. production. For U.S. buyers, aircraft purchased from the Sarasota facility would also benefit from accelerated depreciation, enhancing affordability and helping to sustain demand.

While tariffs present immediate challenges, they may also catalyse longer-term structural adjustments: reshoring production, diversifying supply chains, and aligning workforce planning with new market realities.

For the aviation workforce—from engineers and factory workers in Europe to pilots and MRO technicians across Africa and Asia—resilience will depend on corporate agility, policy engagement, and the ability to adapt to a rapidly shifting global trade environment.

Trade policy is not abstract: it directly shapes employment, corporate strategy, and the future flow of talent across the skies.

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STREET-SMART IN THE SKY: THE MODERN PILOT'S EDGE

By Keith Fryer

There was a time when "being a good pilot" meant flying by the seat of your pants, trusting instinct, and keeping a sharp lookout. The old hands called it airmanship – the good old days of heading and time. But today, in an era where technology is bursting at the seams, even the simplest light aircraft come loaded with advanced avionics, glass cockpits, and Garmin systems that rival airliners of just a decade ago. Pilots now need a different kind of edge: the ability to be street-smart in the sky.

What Does Street-Smart Mean in the Cockpit?

Street-smart pilots don't just know how to fly; they know how to adapt. They aren't dazzled by technology, nor are they intimidated by it. Instead, they understand it and use it as an extension of their aerial decision-making. They anticipate problems before they arrive, think two steps ahead, and know when to trust the glass—and more importantly when to go back to raw flying skills. Street-smart flying is the marriage of well taught instinctive airmanship and technological fluency. It's about being vigilant, skeptical when needed, and prepared to improvise when systems don't behave as advertised. Yes even technology can drop you as we all have learnt in the recent past.

The Garmin Generation: Vigilance Required

Today's cockpit may look like a video game, but it isn't one. A pilot who doesn't understand their Garmin—or worse, who blindly follows it—can quickly become a passenger in their own aircraft. Street-smart pilots:

- **Know Their Systems Inside-Out:** Yes, read that again. They spend time on the ground learning every page, function, and quirk of their avionics. By the time they're airborne, button-pushing is second nature.
- **Cross-Check, Always**: A GPS track is only as good as the satellite reception. Street-smart pilots still glance outside, cross-check headings, and trust—but verify. When did we last fly with a map navigating our route?
- Stay Ahead of the Aircraft: Automation reduces workload, but it also encourages complacency.

Smart pilots use the freed-up mental bandwidth to plan further ahead, manage risks, and anticipate traffic or weather.

Technology as a Double-Edged Sword

It's tempting to think that because the machine is advanced, the human can relax. But history reminds us that technology often lulls pilots into a false sense of security. A street-smart aviator never gives up responsibility to the screen. They understand failure modes, recognize when automation isn't helping, and can click off the autopilot without panic and resume normal navigation.

The Blend of Old and New Airmanship

What truly defines the street-smart pilot is balance. They keep the traditional skills sharp: hand-flying, dead reckoning, and situational awareness outside the cockpit. But they also embrace the future by treating their avionics like powerful allies. In other words: they use every tool available without becoming a servant to any.

Why It Matters More Than Ever

The skies are busier. Weather patterns are less predictable. And aircraft—even at the light end of general aviation—are more complex than ever before.

In this environment, the "seat-of-the-pants" pilot who ignores modern systems is just as vulnerable as the "screen-addict" who never looks up.

The street-smart pilot, by contrast, walks the line between both worlds. They keep their eyes scanning, their hands steady, and their brains switched on—ready to use technology as a partner, not a crutch.

The Takeaway: In the cockpit of the 21st century, street-smart isn't about knowing shortcuts or slick tricks—it's about vigilance, adaptability, and mastering the blend of traditional airmanship with advanced avionics. The future belongs to the pilot who can fly the aircraft and the integrated systems, all while keeping their head in the game.

Get Sky-smart

1. **Know Your Glass Cold**
   Don't just skim the manual—master it. A street-smart pilot knows their Garmin (or any glass panel) like a second language, so button-pushing never distracts from flying.
2. **Trust, But Verify**
   Automation is powerful, but never absolute. Cross-check the magenta line with the compass, the map, and the world outside your window.
3. **Stay Ahead of the Aircraft**
   Use the time saved by technology to think two steps ahead: weather changes, fuel planning, and traffic flow. Don't just monitor—anticipate.
4. **Keep Old-School Skills Sharp**
   Hand-fly often. Practice raw data approaches. Know how to navigate without GPS. If the screen goes dark, you should still be confident.
5. **Be Ready to Take Charge**
   A street-smart pilot knows when to click off the autopilot, stop arguing with the box, and simply fly the airplane – with a map, heading and time...!

Image credit © Pexels

THE FIGHT, FLIGHT, OR FREEZE RESPONSE IN AVIATION EMERGENCIES: WHY ALL THREE ARE DANGEROUS FOR PILOTS

By Andre Roos

On a sunny Saturday afternoon a few years ago, I took my sister, who had never been on any aeroplane, let alone a small aircraft, in her entire life, on what was supposed to be a simple flight. Take off, make a non-standard right turn, climb to 1500 feet, and follow the coastline north to Yzerfontein. For the first time in my 25 years of flying, I experienced a loss of power at about 1300 feet and roughly 5 km away from my departing airfield. Not only did I lose power, even though the prop was still turning, but I also felt severe vibrations, which was a concern for me, as I know what vibrations may lead to: catastrophic in-flight structural failure.

Without even saying a word to my passenger, I made my Mayday call. She thought I was joking but soon realised this was serious. She was a perfect passenger; although visibly distressed, she remained calm and followed our pre-flight briefing instructions.

I have a small YouTube channel, which I run mainly for my own enjoyment, which is why I had a couple of cameras running in the aircraft. I made a poorly edited, as always, short video and uploaded the entire ordeal to my channel. One and a half million views later, and more than four thousand comments, I can now say the event taught me so much.

Pilots are trained to handle complex systems under stressful conditions, but regardless of how disciplined or experienced they are, we are all human and subject to the same physiological and psychological responses as everyone else. It makes no difference if you fly a small aircraft for leisure or a large commercial airliner; your brain and body react in the same way because it is part of our design.

One of the most critical challenges in aviation emergencies is the fight, flight, or freeze response—an ingrained survival mechanism that can override rational thought and impair decision-making. Let me repeat that: it can override rational thought and impair decision-making. How frightening is it to think that your physiological design can cause your brain to make the wrong decisions.

In the aviation environment, these responses are not just unhelpful—they are potentially catastrophic. Unlike in natural environments, where a sudden burst of strength or speed might save a life, in the cockpit, uncontrolled impulses can jeopardise the aircraft, passengers, and crew. This article examines what happens to the body during the adrenal surge that triggers the fight, flight, or freeze response, why each reaction is particularly hazardous for pilots, and how aviators can train themselves to manage this ancient response, thereby preserving clarity and safety.

The Science of the Adrenal Dump

When a pilot detects a sudden threat—such as an engine fire warning, rapid depressurisation, bird strike, or unexpected stall—the brain's amygdala immediately signals danger. This intervention bypasses slower rational processing in the prefrontal cortex and activates the sympathetic nervous system.

The adrenal glands release a surge of adrenaline (epinephrine) and noradrenaline (norepinephrine), priming the body for survival. Simultaneously, cortisol, the stress hormone, enters the bloodstream, sharpening energy availability but impairing higher-order reasoning.

Key physiological changes include:

- Increased heart rate and blood pressure
- Rapid breathing
- Tunnel vision
- Auditory exclusion
- Muscle tension and tremors
- Reduced short-term memory

What was once a life-saving adaptation for prehistoric humans escaping predators now becomes a liability when piloting an aircraft, where calm reasoning, memory recall, and fine motor control are crucial.

The Three Responses and Their Dangers

1. Fight Response

In the "fight" mode, a pilot becomes aggressive, over-controlling, or impulsive. In an emergency, this might present as:

- Making rapid, exaggerated control inputs.
- Fixating on one problem while neglecting situational awareness
- Ignoring crew input or ATC guidance

Example Danger: A sudden engine failure after take-off demands strict adherence to memory items. In my aircraft, the sequence is Speed (55kts), Field (30 degrees left or right from spinner), Fault (diagnose if time allows), Flaps (as needed, then full before touchdown), and Final (unlock canopy, switch off fuel and electrics). A pilot in fight mode may react by aggressively pulling back on the yoke to "fight the descent," which could cause an aerodynamic stall.

2. Flight Response

In the "flight" state, the instinct is to escape the situation as quickly as possible. For pilots, this may manifest as:

- Initiating a rushed return to the nearest airfield, hence the high fatality rate on the infamous impossible turn.
- Abandoning structured checklists and procedures
- Prioritising escape without considering controllability or survivability

Example Danger: Let's revisit the case of an engine failure during takeoff. The pilot in "flight mode" – no pun intended – might abandon all training and reasoning in their haste to return to the departing airfield. This often leads to a loss of control and a tragic outcome.

3. Freeze Response

The "freeze" reaction can be the most insidious. The pilot becomes momentarily paralysed, unable to act,

decide, or communicate.

In aviation, this could look like:
- Staring at warning lights without initiating checklists, almost like the gravity if the situation does not register.
- Delayed response to stall recovery, TCAS warning or even terrain warnings
- Silence in a multi-crew setting when decisive action is required, a complete breakdown of communication between the crew.
- The worst of them all is physically freezing on the controls.

Example Danger: In a low-altitude wind shear encounter, even a two-second freeze can prevent timely application of maximum thrust and escape manoeuvres. I recall several training accidents, all with disastrous outcomes, in which the student froze on the controls after a sudden event triggered the freeze response.

Why These Responses Are Universally Dangerous

The fight, flight, or freeze responses share a common problem: they replace deliberate, trained, and procedural actions with instinctive, untrained reactions.

In the aviation context:
- They undermine crew resource management (CRM)
- They degrade checklist discipline
- They impair communication
- They reduce cognitive flexibility

In other words, survival instincts push in the exact opposite direction of safe airmanship.

Managing the Response: Training and Strategies

While pilots cannot eliminate the fight, flight, or freeze response—it is hardwired—they can anticipate, recognise, and regulate it through structured strategies.

1. **Awareness and Education**

   Understanding physiological changes during an adrenal dump helps pilots counteract them. Never underestimate the power of theory; everyone always stresses how necessary experience is, but theory involves knowing what is happening and why it is happening, even if it has never happened to you before. Theory can help your brain identify the danger and prevent instinctive reactions from provoking opposite responses.

2. **Breathing Control**

   Techniques such as 4-7-8 breathing or box breathing reduce heart rate and restore clarity.

3. **Mental Rehearsal and Visualisation**

   Rehearsing emergencies trains procedural memory to override instinct. This is a powerful tool, and I cannot emphasise enough how strong the mind can be. Rehearsing emergency procedures helps establish neural pathways in your brain; these pathways are followed if the route is rehearsed and are more recent than instinctual responses.

4. **Checklist Familiarity and Memory Items**

   Knowing critical memory items cold ensures immediate, effective action.

5. **Crew Resource Management (CRM) Discipline**

   CRM ensures balanced decision-making through teamwork and communication.

6. **Stress Inoculation Through Training**

   Simulator sessions with high-stress scenarios prepare pilots for real-world situations that trigger adrenal surges.

7. **Post-Event Reflection and Debrief**

   Debriefing reinforces adaptive strategies and reduces the stigma associated with stress reactions.

The fight, flight, or freeze response is a primal survival mechanism that, in aviation, can become a hazard. The adrenaline surge that heightens instincts in primitive danger also impairs the faculties—rational thought, memory recall, fine motor control—that pilots depend on emergencies.

Whether it manifests as aggression and over-control (fight), rash retreat (flight), or paralyzing hesitation (freeze), the instinctive response is dangerous in the cockpit. The antidote is to train pilots to recognise, regulate, and channel it through awareness, breathing, visualization, checklist discipline, CRM, and stress inoculation.

Ultimately, the professional aviator's greatest safeguard lies not in escaping the body's instincts, but in mastering them—transforming adrenaline into focus, fear into clarity, and instinct into disciplined action.

I am thankful for my personal emergency experience, and of course, grateful that we landed safely. The experience taught me a lot about my own fight, flight, or freeze response. It highlighted the importance of theory and emphasised that a pilot's life is one of continuous learning.

Safe Skies

Watch the incident video here:
https://youtu.be/ZZVKrkVYInA

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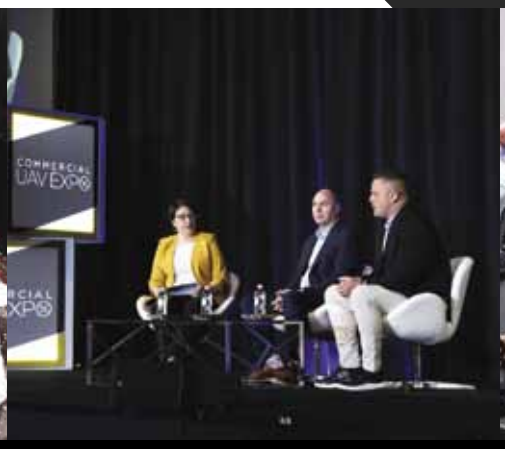

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WIND, SKILL AND SPECTACLE: DURBAN'S VIRGINIA AIRSHOW DELIVERS HIGH-ENERGY DISPLAY

Images By Tony Badger

Despite strong southerly winds, pilots treated spectators to five hours of aerobatics, helicopters and formation flying at Virginia Airport.

Durban's Virginia Airport hosted its annual airshow on 10 August 2025, drawing aviation enthusiasts despite a stiff southerly wind that reached 27 km/h by midday. The blustery conditions added an extra challenge for the pilots, but the flying programme remained packed and engaging.

The day opened dramatically with four parachutists jumping from an Alouette III helicopter, led by a veteran skydiver with more than 10,000 jumps to his name. Helicopters featured strongly throughout the show, with memorable solo routines and a dual display by the Alouette III and Gazelle. The South African Air Force also contributed a striking helicopter pairing with the A109 and BK117 performing together.

Aerobatics dominated the lineup. Five different Extra 300/330 aircraft took to the skies in various routines, while the ever-popular Flying Lions performed with their four Harvards. Their final flat display, adapted due to the wind, proved highly enjoyable as the lower-altitude sequences offered spectators an even closer view. The Good Year Eagles entertained with their trio of Pitts S-2Bs — a proud reminder of 40 years of Pitts aerobatic teams in South Africa.

On the ground, static displays were fewer than some might have hoped, with most coming from the SAAF. The A109 helicopter caught much of the attention alongside a two-seater FK9 light aircraft. There is a sense that a broader range of aircraft on static display could go a long way in promoting aviation to younger visitors.

Overall, the five-hour flying display kept the audience engaged throughout, and despite the wind, the mix of helicopters, aerobatics and formation flying ensured a thoroughly satisfying show for all who attended.

Pitts S-2B ZS-ZS-MZM

Good Year Eagles two Pitts S-2B

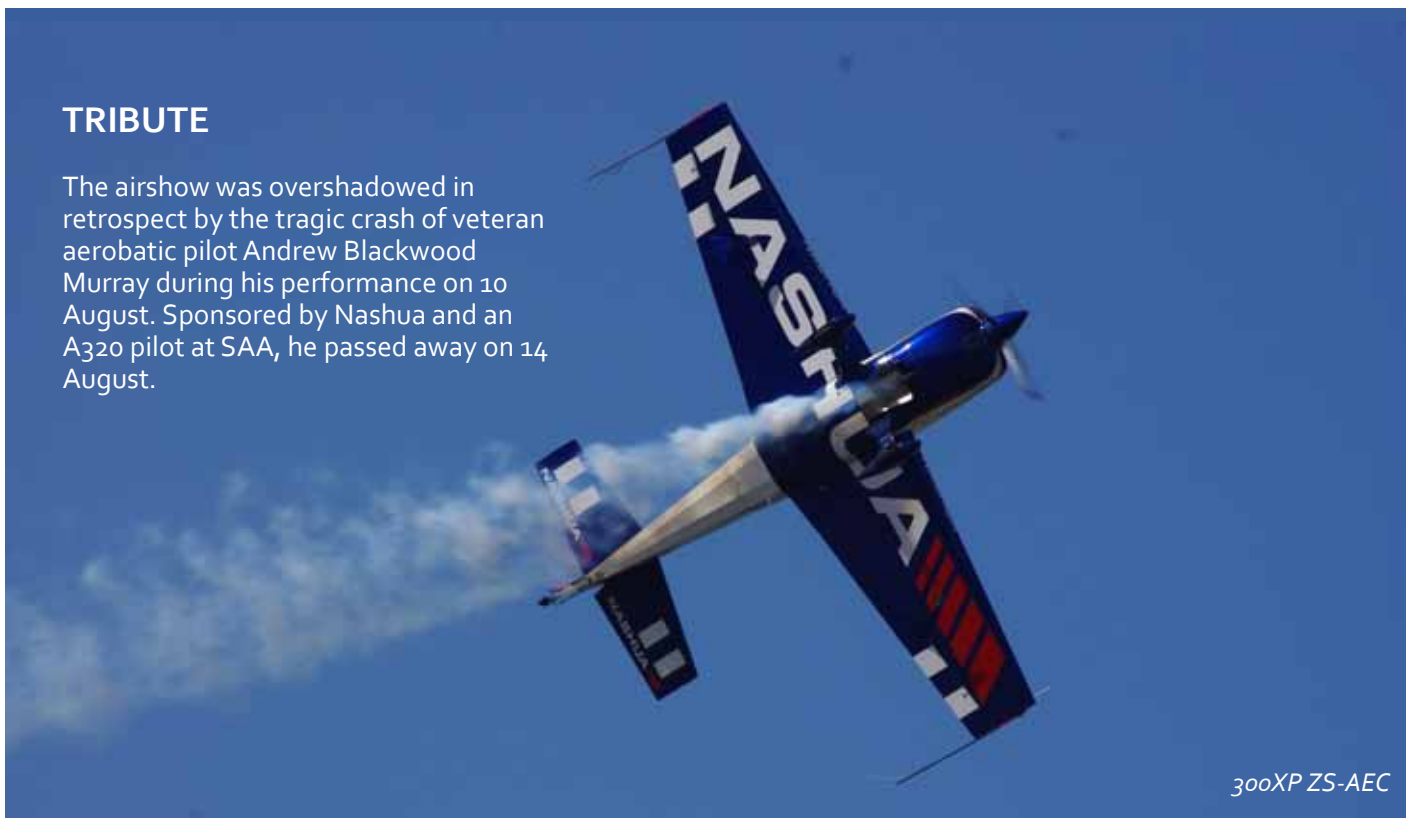
Master Power Technologies

Augusta 109

Alouette 111 and Gazelle duo

TRIBUTE

The airshow was overshadowed in retrospect by the tragic crash of veteran aerobatic pilot Andrew Blackwood Murray during his performance on 10 August. Sponsored by Nashua and an A320 pilot at SAA, he passed away on 14 August.



300XP ZS-AEC

Images Courtesy of: LIATA

LIATA: RAISING THE STANDARD OF AVIATION TRAINING IN AFRICA

By Kirshen Pillay – Training Manager LIATA

In the heart of Johannesburg's bustling aviation hub lies a centre of excellence that is quietly reshaping the future of aviation training in Africa: the Lanseria International Airport Training Academy (LIATA). More than just a training provider, LIATA is a pioneering institution that combines local expertise, global accreditation and a vision for safety and operational excellence that transcends borders.

In line with its forward-thinking approach, LIATA has recently moved into a new, purpose-built Training Centre. The facility incorporates the latest training presentation technology and features a dedicated 12-seater computer room. This investment not only supports future e-learning initiatives but also enables basic computer training for the upliftment and development of both Lanseria International Airport staff and external clients. By blending traditional classroom facilitation with digital tools and virtual platforms, LIATA is positioning itself at the forefront of aviation training innovation.

At a time when the aviation industry demands uncompromising standards of safety, security, and professional competence, LIATA stands out. Not only does the academy deliver world-class training to the dedicated staff of Lanseria International Airport (LIA), but also offers accredited, industry-leading programmes to external clients across South Africa, the wider African continent, and beyond.

A Training Academy Rooted in Operational Excellence

LIATA was born out of Lanseria International Airport's commitment to operational safety, quality, and excellence. As an airport with more than five decades of history serving South Africa's aviation sector, LIA recognised the need for a structured, high-quality training facility that could cater to both in-house personnel and the wider aviation community.

From its inception, LIATA has been guided by a clear mission: to enhance the performance of individuals and organisations by delivering quality training rooted in internationally recognised standards. Every course is designed not just to tick regulatory boxes, but to empower learners with the knowledge, skills, and confidence they need to perform in high-pressure aviation environments.

What sets LIATA apart is its dual role. On one hand, the academy ensures that every member of Lanseria International Airport staff, from firefighters and security personnel, to ground handlers and safety officers, operates at the highest level of professionalism. On the other hand, it opens its doors to airlines, aviation service providers, and external organisations seeking globally benchmarked training that is accessible, practical, and affordable.

A Curriculum Designed for the Real World

At LIATA, training is not confined to theory. Every programme blends essential classroom knowledge with hands-on practical exercises, ensuring that learners are fully prepared for real-world scenarios. Courses are carefully structured to align with South African Civil Aviation Authority (SACAA) regulations, the Southern African Emergency Services Institute and the Occupational Health and Safety Act, while also meeting global best-practice standards.

LIATA offers a wide spectrum of courses across multiple fields:

- **Aviation Security:** Tiered programmes equip security screeners, supervisors, and managers with the tools to prevent threats, manage incidents, and protect passengers, aircraft, and infrastructure.
- **Firefighting and Rescue:** From basic fire marshal training to advanced aircraft rescue firefighting, LIATA prepares airport and aviation fire services for the most demanding emergencies.
- **Dangerous Goods Training:** Specialised modules for flight crews, cargo handlers, and ground personnel teach the safe identification, storage, and transport of hazardous materials.
- **Occupational Health & Safety:** Covering everything from working at heights to safety representative training, these courses ensure compliance while fostering a culture of workplace safety.

Each course is delivered by seasoned professionals with years of hands-on industry experience. This wealth of expertise ensures that learners are not just being trained, but mentored, by individuals who understand the complexities of aviation first-hand.

Africa's Only SAESI-Accredited Airport Training Academy

While many training institutions claim excellence, LIATA's credibility is cemented by its unique accreditations. It is the only airport training academy in Africa accredited by the South African Emergency Services Institute (SAESI) and registered with the International Fire Service Accreditation Congress (IFSAC).

SAESI accreditation ensures that LIATA's firefighting and emergency response courses meet rigorous international standards, while IFSAC registration elevates the academy onto the global stage. The result is a training provider that can deliver programmes recognised worldwide, enabling graduates to pursue opportunities not just in South Africa, but across the globe. Through this rare combination, LIATA has positioned itself as a global training provider while also empowering African aviation professionals with qualifications that carry weight on a global scale.

Training Beyond Borders

Although proudly South African, LIATA's influence is not confined to Johannesburg or even to South Africa. The academy regularly delivers on-site and off-site training going into other African nations. This mobility is crucial in a continent where many airports and aviation service providers face challenges in accessing accredited training facilities.

By taking its expertise directly to clients, LIATA helps close the skills gap in regions where aviation growth is booming but where safety and compliance requirements are becoming ever more demanding. Whether it's training airport firefighting teams in another African country or providing security awareness programmes to a new airport, LIATA is extending its impact across borders.

Building a Safer, Stronger Industry

Aviation is built on trust between airlines and passengers, between airports and regulators, and between staff and the systems that keep them safe. LIATA plays a crucial role in strengthening that trust. By focusing on safety, health, and operational excellence, the academy ensures that every graduate not only complies with regulations but actively contributes to a safer aviation ecosystem. The ripple effect is powerful and aids to build an ecosystem where aviation clients and airports with LIATA-trained staff are better equipped to prevent accidents, respond to emergencies, and uphold the highest standards of service and security. This focus on safety also underscores Lanseria International Airport's reputation as a leader in African aviation and the recently awarded Safest Airport in South Africa .

Looking to the Future

As the global aviation sector continues to recover and grow, the demand for skilled professionals will only intensify. Emerging technologies, increased passenger volumes, and heightened safety requirements all point to a future where training is more critical than ever. LIATA is well-positioned to meet this demand. With its combination of its fit for purpose facilities, experienced instructors, and international accreditation, the academy is already setting the benchmark for aviation training in Africa. But its vision goes further, and thrives to become the training partner of choice for aviation professionals worldwide. By continuing to expand its course offerings, leverage digital learning platforms, and strengthen its international partnerships, LIATA is preparing to shape the next generation of aviation leaders. The story of LIATA is one of vision, commitment, and excellence. As the only internationally SAESI-accredited airport training academy in Africa, it holds a unique place in the aviation training landscape.

Its ability to train both Lanseria International Airport staff and external clients positions it as a bridge between local expertise and global standards. For aviation professionals seeking training that is credible, practical, and globally recognised, LIATA is more than a provider, it is a partner in building safer skies.

10 IATA COURSES SHAPING CAREERS

What are aviation professionals learning right now? As global aviation continues to grow, training remains at the heart of a safe, efficient, and competitive industry. The International Air Transport Association (IATA) has introduced a series of new and updated courses designed to build expertise across operations, regulation, management, and leadership. From airline scheduling to cargo management, these programmes are equipping professionals with the knowledge to meet today's challenges and tomorrow's opportunities.

Here are ten IATA courses shaping aviation careers right now:

1. **Network, Fleet and Schedule Planning**
   This classroom course helps airline planners balance fleet utilisation, market demand, and profitability. It provides practical tools for developing efficient schedules that maximise performance across global networks.
2. **Risk-Based IOSA Airline Training**
   Aimed at safety and quality managers, this course supports airlines in implementing risk-based auditing aligned with the IATA Operational Safety Audit (IOSA) standards.
3. **CAA Management and Oversight – Part 1**
   Designed for civil aviation authority professionals, this programme strengthens oversight capabilities and provides tools for effective regulatory management.
4. **CAA Management and Oversight – Part 2**
   Building on Part 1, this second module dives deeper into advanced oversight practices, equipping participants to handle complex regulatory frameworks.
5. **Aviation Law and Regulations**
   Offered in both classroom and virtual formats, this course provides an essential grounding in international aviation law, compliance, and regulatory frameworks.
6. **Dangerous Goods Regulations Assessor**
   Focused on safety in cargo and passenger operations, this course trains assessors to ensure strict compliance with IATA's Dangerous Goods Regulations.
7. **Air Cargo Management**
   With air cargo at the core of global trade, this course provides insights into operations, revenue optimisation, and supply chain efficiency.
8. **Airline Financial Management**
   Targeting finance professionals, this training strengthens skills in cost control, revenue management, and financial decision-making for airline sustainability.
9. **Train the Trainer**
   This course develops professional aviation trainers, equipping them with advanced teaching techniques and evaluation methods to deliver high-impact learning.
10. **Aircraft Turnaround Coordination and Loading Supervision**
    Focused on ground operations, this training enhances skills in coordinating turnaround activities and supervising safe, efficient aircraft loading.

ELIZABETH EXPANDS HER WINGS: FROM CABIN CREW TO COMMERCIAL PILOT

How Elizabeth Mapatle worked to achieve her dream of holding a commercial pilot's license.

Following years of working as a passionate cabin crew member, Elizabeth Mapatle has achieved her dream of becoming a commercial pilot, joining the less than 6% of female commercial pilots in the world, according to the Air Line Pilots Association International trade union.

When asked how she feels about achieving this goal, Elizabeth says, "It feels absolutely amazing! It's a mix of pride, gratitude, and disbelief. It's the kind of dream you work so hard for that when it finally happens, you need to pause and remind yourself - Wow, I really did it!"

Elizabeth has been working as a cabin crew member for LIFT for five years, with an impressive 15 years of airline industry experience. She grew to love aviation as a little girl, when her father would take her and her siblings to the then Jan Smuts Airport to watch planes take off and land. "That's where it all started. I was amazed at all these incredible machines taking to the skies". In 2022, Elizabeth completed her private pilot license, her first step towards becoming one of South Africa's few female commercial pilots.

"I've been with LIFT since the very beginning, and it's been nothing short of magical. Being part of starting an airline was a rare opportunity and an incredible learning curve. I've grown so much, and along the way I've built friendships that have turned into family."

Speaking on this feat, she says, "It's empowering. Being a woman in this space means showing that gender doesn't define ability. It's about inspiring the next generation of women to know they can own their space in the cockpit too."

She adds that women can unfortunately be undermined in the industry, noting that women are questioned before they even get the chance to prove themselves. "It pushes you to work twice as hard - not only for yourself but to change perceptions".

Elizabeth's success has not come without its challenges and sacrifices, and she explains her sacrifices as 'very real'. "At times, I had to choose between buying groceries or paying for flying, between getting a new car or just fixing the old one. I studied before work, sometimes after work, skipped holidays, and even sold a bed from my second bedroom just to cover flying expenses. Every sacrifice was a reminder of how much I wanted this dream."

Apart from her perseverance through financial challenges and time constraints, Elizabeth suffered the loss of both her parents last year, just one month apart, right in the middle of a very intense and critical phase of her training. "I managed it through exercise and reading, because I strongly believe that a healthy body equals a strong mind. Most importantly, I took it one day at a time."

Elizabeth admits her achievement hasn't fully registered, "It still hasn't fully sunk in that I, Elizabeth, hold a Commercial Pilot's License. The celebration will come, but for now, I'm still soaking it all in!"

Being the ambitious woman that she is, she already has her eye on the next goal; writing her Airline Transport Pilot License (ATPL) exams. Beyond that, she is also considering the pursuit of a law degree.

On advice for young women seeking to become pilots, Elizabeth says, "You're going to hear more "no's" than "yes's." But if you know your why, you stick to it, no matter how tough it gets. Keep your eyes on the goal and never, ever give up.'

About LIFT:
LIFT is operated by Global Aviation Operations (Pty) LTD trading as LIFT. LIFT is SA's first fully flexible airline, offering hassle-free changes and cancellations, generous legroom, and complimentary vida e caffè coffee and snacks at no extra charge. LIFT's goal is to make travel comfortable, convenient, and stress-free.

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Melissa Sewgolam

Mobile: +27 (0) 82 847 3403

Email: mellisa@caasa.co.za

Gate 9, Lanseria International Airport

www.caasa.co.za