VOLUME 53 ISSUE 7 / OCTOBER 2025

WORLD AIR NEWS

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AFRICA'S AIRPORT RENAISSANCE

UNLOCKING SEAMLESS TRAVEL

RAND AIRPORT ART DECO LANDMARK

DIGITAL INNOVATION AT AIRPORTS

THE IMPOSSIBLE TURN

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PASSENGER EXPERIENCE & FUTURE TRAVEL

This month, *World Airnews* takes you inside the evolving world of airport operations, infrastructure, and the future of passenger experience. Our feature examines how airports are transforming from simple transit hubs into integrated, passenger-focused environments that combine digital innovation, wellness, and smart retail.

We explore the rise of end-to-end digital travel, where one ID can carry a passenger from booking to boarding. With IATA's One ID initiative leading the way, biometric recognition and contactless processes are redefining efficiency and security. Multi-modal connectivity is also coming to the fore: airports are increasingly integrating air travel with rail, bus, and urban mobility to streamline connections and enhance sustainability.

Wellness-Centred Design

Airports are paying attention to how travel affects passengers' well-being. From quiet zones, sleep pods, and wellness lounges to indoor greenery and circadian lighting, terminals are being redesigned to reduce stress and promote comfort. We highlight standout examples such as Doha's Hamad International Airport and local initiatives at Cape Town International, showing how wellness is becoming a cornerstone of modern airport planning.

Data-Driven Retail

The airport shopping experience is also evolving. Personalized duty-free offers, app-driven promotions, and immersive augmented reality displays are transforming terminals into engaging, revenue-generating spaces. Our coverage shows how airports are leveraging data to create retail environments that anticipate passenger needs and enhance the journey.

This edition sets the scene for the future of airports: a seamless, comfortable, and highly connected passenger experience, underpinned by innovation in operations, infrastructure, and service design. From global benchmarks to developments on the African continent, we bring you a snapshot of how airports are redefining travel in 2025 and beyond.

Artist Impression. Credit: Bishoftu International Airport – Ethiopia

AFRICA'S AIRPORT RENAISSANCE

Africa's Aviation Leap: Mega Airport Projects Set to Transform Connectivity and Growth by 2030.

Across Africa, a quiet but transformative shift is taking place in the skies. From the bustling capitals of Ethiopia and Nigeria to emerging tourism hubs in Uganda and Mozambique, nations are investing heavily in their aviation infrastructure. Ambitious mega airport projects, many set to become the largest and most advanced on the continent, are poised to redefine air travel, stimulate economic growth, and unlock new opportunities for trade and tourism.

In 2025 alone, Africa has seen a remarkable surge in airport construction and redevelopment, reflecting both the continent's growing population and its aspiration to become a significant player in global aviation. These initiatives are more than just building runways and terminals—they are comprehensive projects that integrate commercial, residential, and leisure developments, positioning airports as engines of economic growth and innovation.

Here, we explore ten of the most significant projects currently shaping Africa's aviation landscape, each representing a step toward the continent's ambitious 2030 vision.

Bishoftu International Airport – Ethiopia

Ethiopia's flagship project, Bishoftu International Airport, stands as a testament to the country's determination to cement its position as Africa's aviation hub. Located 40 km southeast of Addis Ababa, the $10 billion airport is designed to handle an initial 60 million passengers annually, with expansion potential up to 110 million.

More than a transport hub, Bishoftu is envisioned as an airport city—a comprehensive ecosystem integrating shopping malls, hotels, conference centres, and recreational facilities. Strategically designed to accommodate the growing passenger and cargo demands of East Africa, the project is slated for completion in 2029 and promises to position Ethiopia alongside the continent's leading aviation centres.

Industry analysts point to Ethiopia's proactive approach in expanding its aviation footprint, including the national carrier Ethiopian Airlines' ongoing fleet modernisation, as synergistic with Bishoftu's development. The airport is expected not only to improve connectivity but also to attract foreign investment and promote regional trade.

Credit: Benghazi International Airport – Libya

Benghazi International Airport – Libya

Libya is making a bold return to the international aviation stage with the $1.3 billion Benghazi International Airport, set to open in 2026. Spanning 24 km², the airport will accommodate 15 million passengers annually and feature a 125,000 m² terminal, VIP facilities, a dedicated cargo hub, and a 3.8 km runway capable of hosting an Airbus A380.

For Libya, this project is a signal of recovery and ambition. Beyond restoring essential air services, Benghazi International aims to re-establish the


Credit: Ouagadougou-Donsin Airport -Burlina Faso

country as a regional aviation player, encouraging international airlines to expand their networks and providing critical infrastructure to support economic revival. The development also highlights Libya's growing commitment to integrating modern technology, sustainability practices, and passenger-centric designs into its aviation landscape.

New Mogadishu International Airport – Somalia

Somalia is investing $800 million in a new airport in Haawaay, Middle Shabelle region, with construction having commenced in June 2025. Scheduled for completion by 2030, the New Mogadishu International Airport is intended to relieve congestion at the capital's Aden Adde International Airport and enhance East Africa's regional connectivity.

This initiative reflects Somalia's broader ambition to rebuild and modernise its infrastructure after decades of disruption. By offering state-of-the-art facilities, including cargo handling and passenger amenities, the airport aims to stimulate both commercial and tourism sectors. Once operational, it is expected to serve as a critical hub for domestic and international travel, strengthening Somalia's role in regional aviation networks.


st Impression. Credit: New Mogadishu International Airport – Somalia

Ouagadougou-Donsin Airport – Burkina Faso

Burkina Faso is upgrading its air transport capabilities with Ouagadougou-Donsin Airport, located 35 km north of the capital. The new airport will replace the urban-bound Thomas Sankara International Airport, delivering enhanced safety, efficiency, and capacity to meet the growing passenger traffic of the nation.

By situating the airport outside the congested city centre, authorities aim to reduce operational risks and streamline passenger processing. The project underlines a growing trend in African aviation planning: developing airports that are not only larger but smarter, with integrated logistics, improved cargo handling, and the capacity to accommodate larger aircraft.

Cape Winelands Airport – South Africa

South Africa is expanding its airport infrastructure with the redevelopment of Cape Winelands Airport, located approximately 13 km northeast of Durbanville in the Western Cape. Originally established as Fisantekraal Airfield in 1943, the site is being transformed into Cape Town's second international airport, featuring a 3.5 km runway, a boutique terminal, cargo facilities, and commercial amenities.

Expected to handle over 5 million passengers annually by 2050, Cape Winelands Airport will relieve pressure on Cape Town International Airport and enhance regional connectivity. The development is also aligned with the Western Cape's strategy to stimulate tourism, business travel, and trade by creating a secondary gateway capable of hosting both domestic and international flights.

Lekki-Epe International Airport – Nigeria

Nigeria, Africa's most populous nation, is expanding its aviation footprint through the Lekki-Epe International Airport, designed to accommodate five million passengers annually. Developed under a public-private partnership, this project underscores Nigeria's commitment to improving connectivity and supporting economic growth through strategic infrastructure investments.

Situated to serve Lagos' rapidly expanding urban

Credit: Cape Winelands Airport – South Africa

and commercial zones, Lekki-Epe will facilitate smoother passenger flows, reduce congestion at Murtala Muhammed International Airport, and support cargo and logistics operations vital to Nigeria's thriving economy. As Nigeria continues to attract multinational investment, projects like Lekki-Epe signal a new era of modern, efficient, and internationally competitive aviation infrastructure.

Kabalega International Airport – Uganda

Kabalega International Airport, located in Hoima District, is a critical investment for Uganda's oil and gas sector. Designed to accommodate up to four cargo planes simultaneously, the airport is poised to become a regional hub for commercial activity, linking Uganda's extractive industries to domestic and international markets.

The airport's strategic location supports Uganda's economic diversification and industrial growth, with infrastructure developments in the surrounding areas expected to include industrial parks, logistics centres, and commercial facilities. Kabalega represents a model for sector-driven airport development, where aviation infrastructure is closely aligned with national economic priorities.

Credit: Leke-Epe International Airport – Nigeria

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Msalato International Airport – Tanzania

Tanzania's Msalato International Airport in Dodoma is designed to bolster the capital city's development while enhancing national and regional connectivity. Once completed, Msalato will serve as the principal gateway in central Tanzania, supporting both passenger travel and cargo logistics.

The airport aligns with Tanzania's long-term vision to decentralise air traffic from Dar es Salaam, promote domestic tourism, and strengthen economic activity in the central region. With modern facilities capable of handling large aircraft and significant passenger volumes, Msalato is expected to act as a catalyst for urban development and regional integration.

Kidepo International Airport – Uganda

Targeting the tourism potential of Kidepo National Park, Kidepo International Airport is being developed in partnership with the Sharjah Chamber of Commerce and Industry. By improving access for international tourists, the airport is expected to stimulate local economic development while highlighting Uganda's rich natural and cultural assets.

The project is a strategic example of tourism-driven aviation development, where airports are designed not just as transport hubs but as gateways to regional attractions, creating jobs, supporting local businesses, and promoting sustainable travel.

Dr. Antonio Agostinho Neto International Airport – Angola

Angola's investment in Dr. Antonio Agostinho Neto International Airport demonstrates the country's commitment to expanding its aviation capabilities and supporting trade and passenger traffic growth. The airport represents a significant leap in regional connectivity, strengthening Angola's role in Southern Africa's transport networks.

As Angola diversifies its economy and encourages international business, the airport's modern facilities—


Credit: Dr. Antonio Agostinho Neto International Airport – Angola

including cargo handling, passenger terminals, and integrated commercial zones—will serve as a critical platform for both domestic and regional travel. This development underscores the broader trend across Africa of investing in aviation infrastructure as a cornerstone of economic strategy.

A Continent on the Rise

These ten projects are emblematic of a continent-wide commitment to modernising aviation infrastructure, fostering regional integration, and driving economic development. Beyond the steel and concrete, Africa's airport renaissance reflects the continent's aspiration to connect its people, markets, and opportunities more efficiently than ever before.

By 2030, these mega hubs will not only handle millions of passengers but also catalyse urban development, tourism, and trade, firmly placing Africa on the global aviation map. Modern airports are no longer merely points of transit; they are economic engines, city-building instruments, and gateways to international opportunity.

The scale, ambition, and strategic foresight evident in these developments signal a transformative moment for African aviation. As these airports rise across the continent, they promise to deliver more than infrastructure—they represent Africa's commitment to progress, innovation, and connectivity, charting a course toward a more integrated, prosperous, and globally connected future.

For passengers, investors, and governments alike, Africa's aviation leap is well underway, and the next decade promises to be a defining era in the continent's journey toward becoming a world-class aviation hub.


Credit: Rwanda Airport. Artist Impression

All images Credit: Boeing South Africa

558 STUDENTS GRADUATE FROM THE 2025 PATHWAYS TO SPACE PROGRAM IN AFRICA

Inspiring Africa's next generation of space explorers. The Future African Space Explorers STEM Academy (FASESA), in partnership with Boeing, has celebrated the graduation of the second cohort of the Pathways to Space programme. The ceremony, held at the Planetarium Dome in the Science Museum in Addis Ababa, marked a milestone for African space education, with 558 high school students from Ethiopia, Kenya, and Nigeria completing the five-month immersive course.

Henok Teferra Shawl, Boeing managing director for Africa, highlighted the importance of nurturing young talent:

"African youth represent one of the greatest reserves of untapped aerospace talent anywhere in the world. By giving our young people access to subject matter experts and hands-on learning, Pathways to Space helps connect their ambitions with future opportunities, laying the foundation for Africa to increase its contribution to the global space industry."

Sean Jacobs, founder and executive director of FASESA, described the programme's transformative impact:

"Through Boeing's sponsorship and partnerships, we have been able to bring space into the classroom, directly to the learners. Pathways to Space is not only inspiring the students, we have created a life-changing movement that has brought actionable change and positive impact, shaping the lives of our future African space leaders, their communities, and their nations."

Expanding reach, inspiring futures

Originally launched in 2024, Pathways to Space reached 314 students in Ethiopia, Nigeria, and Tanzania during its inaugural year. With growing interest and demand, the 2025 edition nearly doubled in size, enrolling 558 students—322 of them girls.

This year's participants included 109 students from Ethiopia, 82 from Kenya, and 367 from Nigeria, underscoring the broad regional commitment to space education. The programme's mix of classroom learning, hands-on activities, and mentorship has proven to be a successful formula for capturing students' imaginations and guiding them toward future careers in science, technology, engineering, and mathematics (STEM).

For Grade 10 student Olyad Dejene from ODA Special Boarding School in Ethiopia, the programme opened new horizons:

"I have always been curious about space — how stars form and how galaxies change. Working with my team on our capstone documentary about space exploration wasn't easy, but we learned to push through challenges together. The biggest lesson I'll carry forward is to never give up. One day, I hope to study astrophysics and inspire other young Africans to dream big."

Learning from the best

The strength of the programme lies in its ability to bridge the gap between students and global expertise. The 2025 curriculum was designed in close collaboration with the Ethiopia Space Science and Geospatial Institute, the Kenya Space Agency, and the Nigeria Space Research and Development Agency.

Students gained insights into spacecraft technology, robotics, and extravehicular activity (EVA) simulations, supported by mentorship from international leaders in the field. Notable contributors included Dr. Gregory Chamitoff, former NASA astronaut and professor at Texas A&M University; Prof. Jay C. Buckey Jr., physician-astronaut from the Columbia Space Shuttle mission; and Dr. Emily Matula, EVA flight controller at NASA's Johnson Space Center. Their guidance offered students a rare opportunity to learn first-hand what it takes to pursue a career in space exploration.

Looking ahead

Over its first two years, Pathways to Space has already reached more than 870 students across Africa, with more than half of the participants being girls. This reflects the programme's strong emphasis on diversity and inclusion, ensuring that young women are equally represented in the continent's growing space journey.

Building on this momentum, FASESA and Boeing plan to expand the programme to additional countries and develop advanced training tracks. These will be designed to support graduates as they move from school into higher education and, ultimately, into professional aerospace careers.

By investing in the next generation, both organisations are helping position Africa as a future contributor to global space science and exploration.

About FASESA

The Future African Space Explorers STEM Academy is a young and growing initiative dedicated to bringing space exploration into African classrooms. It aims to overcome barriers of entry to the vocation by giving learners access to resources, mentorship, and information that might otherwise remain out of reach. More details at www.fasesa.com.

About Boeing Africa

Boeing has supported Africa's aviation growth for over seven decades. Today, nearly 70% of the continent's carriers rely on Boeing aircraft for connectivity. The company maintains offices in Ethiopia and South Africa, alongside field service representatives stationed with airlines across the region. More information is available at www.boeing.africa.

BISHOFTU INTERNATIONAL AIRPORT: – ETHIOPIA'S BOLD STEP TOWARDS BECOMING AFRICA'S AVIATION POWERHOUSE

When Ethiopian Airlines Group gathered government leaders, financiers, contractors, suppliers, and investors in Addis Ababa earlier this month, the event was about more than just a new airport. The two-day Bishoftu Airport Project Showcase signalled Ethiopia's determination to reshape the continent's

Hosted at the Ethiopian Skylight Hotel and organised in partnership with the African Development Bank (AfDB), Dar Al-Handasah Consultants (DAR), and KPMG, the showcase attracted representatives from more than 40 institutions. From development banks to export credit agencies and commercial lenders, the breadth of attendees reflected the wide international interest in what is being described as a transformative aviation infrastructure programme for Africa.

The Vision Behind Bishoftu

At the heart of the showcase was a simple but ambitious proposition: Ethiopia needs an international airport capable of handling the next generation of air travel demand. Addis Ababa Bole International Airport has served as the country's main gateway for decades, but capacity constraints are becoming increasingly visible as Ethiopian Airlines continues its rapid growth. Bishoftu International Airport, located about 39 kilometres southeast of Addis Ababa, is designed to address that challenge. The new hub will eventually handle up to 100 million passengers annually — a scale that rivals some of the world's largest airports. The plan is not just about relieving pressure on Bole; it is about creating a modern aviation complex that positions Ethiopia as a global connector and a competitive alternative to established hubs in the Middle East and Europe.

Credit: Ethipian Airlines group . Artist impression.

Ethiopian Airlines Group CEO Mr Mesfin Tasew underscored the significance of the project in his remarks at the showcase: "The Bishoftu mega international airport, Africa's transformative project, calls for the collaboration of various stakeholders. Ethiopian has already partnered with several institutions for the initial works and will continue to further expand its collaboration with various other stakeholders. This project showcase paves the way for new partnerships, allowing deep insight into the project and its significance in the African aviation landscape and beyond."

Aligning Stakeholders for a Mega Project

The showcase was more than an announcement — it was a working session. Over two days, Ethiopian Airlines presented the project's structure, financing strategy, and risk allocation framework. Attendees were invited to understand how engineering, procurement, and construction (EPC) contracts will be managed, and how financing will be syndicated across multilateral and bilateral development banks, export credit agencies, and commercial institutions.

The inclusion of a site visit and detailed project presentation reinforced transparency and gave stakeholders a tangible sense of the scale of the development. Importantly, the event also created space for dialogue. Contractors and suppliers had the opportunity to engage directly with financiers and government representatives, setting the stage for a more aligned approach as the project moves towards formal syndication.

A Strategic Hub for Africa

Bishoftu is not being developed in isolation. It sits squarely within Ethiopian Airlines' broader "Vision 2035" strategy, which aims to elevate the group into the ranks of the world's top 20 most competitive aviation companies. Central to that vision is network growth — and network growth requires infrastructure.

Ethiopian already operates the largest and most extensive route network in Africa, connecting more than 160 destinations across five continents. With hubs in Togo (ASKY), Malawi (Malawi Airlines), Zambia (Zambia Airways), and the Democratic Republic of the Congo (Air Congo), the airline has positioned itself as the champion of intra-African connectivity. Bishoftu represents the

next step: a modern mega-hub that can seamlessly integrate these regional operations while attracting global flows of traffic.

Analysts point out that Africa's air travel market is poised for significant expansion. With a population expected to double by 2050 and a growing middle class, the demand for efficient air travel will increase. Infrastructure, however, has often lagged behind. By investing in a hub of this scale, Ethiopian is not only future-proofing its operations but also sending a message: Africa will not remain dependent on external gateways forever.

Financing and Partnerships

Mega projects require mega financing, and Bishoftu is no exception. The presence of AfDB, DAR, and KPMG highlights both the complexity and the seriousness of the endeavour. AfDB brings experience in structuring large infrastructure projects on the continent, while DAR provides world-class engineering expertise. KPMG is advising on financial structuring and governance — ensuring that the project attracts international capital under globally recognised frameworks.

The showcase highlighted the risk allocation framework, a critical element in securing investor confidence. Multilateral institutions, export credit agencies, and commercial banks all have different appetites for risk; balancing these will be key to ensuring a sustainable financing package.

The broad turnout — with more than 40 institutions represented — suggests that appetite is there. The next steps will involve formal syndication, aligning timelines, and translating interest into concrete commitments.

Economic and Social Impact

The implications of Bishoftu extend far beyond aviation. Large-scale airport projects act as engines of economic development, generating thousands of direct and indirect jobs in construction, operations, and services. They also stimulate tourism, trade, and investment by providing reliable access to global markets.

For Ethiopia, Bishoftu has the potential to become a catalyst for economic diversification. Logistics, manufacturing, and service industries stand to benefit from improved connectivity. The surrounding region will also see new opportunities in housing, transport, and commercial development.

Crucially, the project underscores Ethiopia's role as a continental leader. While other African nations are upgrading airports and building new terminals, Bishoftu stands out in scale and ambition. If delivered successfully, it will become a model for how Africa can mobilise partnerships to deliver complex infrastructure.

Challenges Ahead

Despite the optimism, challenges remain. Financing mega infrastructure projects is never straightforward, especially in a global environment marked by fluctuating interest rates and geopolitical uncertainty. Ensuring cost control and timely delivery will test both contractors and project managers.

There are also operational questions: how quickly Ethiopian can transition from Bole to Bishoftu, how passenger flows will be managed, and how the airline will maintain seamless operations during the shift. Moreover, the airport's long-term success depends on continued growth in demand — both for international transfer traffic and for Africa's own fast-growing markets.

Cybersecurity, sustainability, and resilience are other issues on the agenda. As airports become more digitised, protecting systems against cyber threats will be critical. Similarly, ensuring that Bishoftu meets environmental and sustainability standards will be important not only for regulatory compliance but also for Ethiopian's reputation as a modern carrier.

A Continental Statement

What makes Bishoftu truly significant is not just its size but what it represents. For decades, much of Africa's international air traffic has flowed through hubs outside the continent. Bishoftu is a statement that Africa can build, operate, and sustain infrastructure that competes on the global stage.

As Mr Mesfin noted during the showcase, the project is not just about Ethiopian Airlines — it is about Africa's place in global aviation. If Bishoftu succeeds, it will strengthen the continent's connectivity, independence, and influence. The Bishoftu Airport Project Showcase in Addis Ababa marked the start of a new chapter for Ethiopian Airlines and for African aviation more broadly. With stakeholders aligned, financing frameworks presented, and international interest confirmed, the groundwork has been laid for a transformative project.

The road ahead will be complex, but the vision is clear: a world-class hub that can handle 100 million passengers, underpin Ethiopian's growth strategy, and serve as a beacon for Africa's aviation ambitions.

DURBAN'S NEW AIRPORT
PROPOSAL GAINS MOMENTUM

Durban may once again see an airport rise on its southern flank, with city manager Musa Mbhele unveiling a proposal that has drawn broad support from tourism bodies and opposition parties alike. The project, which is still in its early stages, has been described as a catalyst for economic growth, regional accessibility, and long-awaited job creation.

The announcement was made during a recent mayoral tourism stakeholder engagement session, where Mbhele confirmed that eThekwini is exploring plans for a second airport on the South Coast. For many in the tourism sector, the move could help reverse the decline that followed the closure of Durban International Airport in 2010, when King Shaka International Airport opened in La Mercy, 35 km north of the city.

A Region Left Behind

Sapphire Coast Tourism's Romy Wenzel said the south coast has borne the brunt of the loss.

"For the past 15 years, the community has suffered since the old airport closed its doors. A new airport would really boost tourism — not just in the immediate area, but all the way down to Port Edward," she said. The relocation to King Shaka was prompted by Durban International's shorter 2.4 km runway, which could not accommodate larger aircraft. By contrast, King Shaka offers a 3.7 km runway suited to long-haul operations.

After closure, the site of the old airport was sold by Airports Company South Africa to Transnet for R1.8 billion in 2012 and later leased to Seaworld in 2017. The development never materialised, and a cancelled lease has since led to a legal dispute.

Political Reactions

Political parties have been quick to weigh in on the latest proposal. The Democratic Alliance (DA) welcomed the initiative, with councillor Thabani Mthethwa calling it a potential "unlocker" of economic opportunities. "Strategic infrastructure projects like this can position Durban as a competitive and thriving economic hub," he said, emphasising the importance of transparency and inclusivity in the process.

The Democratic Liberal Congress expressed similar support. Party leader Patrick Pillay said, "The establishment of the new airport will provide much-needed job opportunities, enhance the economy, and turn the old airport site — currently a white elephant — into a driver of development."

ActionSA, however, struck a cautionary note. Councillor Sanelisiwe Zuma argued that the City should first address service delivery failures before embarking on major projects.

"Durban struggles to attract tourists due to failing infrastructure, an unreliable water and electricity supply, and a collapsing sewerage system. Development in a crumbling city is not the solution," she said.

EThekwini councillor Mdu Nkosi gave his full backing, describing the proposed airport as essential for a city of Durban's stature.

"A second major airport could create numerous jobs and attract new travel destinations. Innovative projects like this are what KwaZulu-Natal needs to stimulate growth," Nkosi said.

Balancing Vision with Reality

While there is clear appetite for a second airport in Durban, questions remain about timing, funding, and priorities. With unresolved disputes over the old site and ongoing infrastructure challenges in the city, observers say much will depend on how eThekwini frames the project and secures stakeholder partnerships.

For now, the proposal has reignited debate on the future of aviation infrastructure in KwaZulu-Natal — and whether bold new projects can coexist with the urgent need to restore Durban's appeal as a tourism destination.

LANSERIA INTERNATIONAL AIRPORT: – TRANSFORMING GAUTENG'S GATEWAY TO THE SKIES

Lanseria International Airport, Gauteng's secondary airport, is preparing for a bold transformation that could reshape the region's aviation and commercial landscape. Under the leadership of CEO Rampa Rammopo, the airport is embarking on a comprehensive general aviation revitalisation programme designed to modernise infrastructure, improve operational efficiency, and position Lanseria as a key logistics and business hub.

Modernising infrastructure for the future of aviation
Speaking at the 2025 Aero South Africa trade show, Rammopo outlined a five-year plan that prioritises major infrastructure upgrades. Central to this initiative is the refurbishment of the airport's hangars—a programme that will bring facilities in line with contemporary operational standards while supporting future growth. Improvements to the main taxiway are also underway, ensuring smoother aircraft movement and faster turnaround times.

A dedicated fixed-base operator (FBO) precinct is another highlight. Designed specifically for private aviation services, this precinct will provide a secure and efficient zone for business jets, corporate aircraft,

Credit: Lanseria Airport

and specialised operators. Meanwhile, expansions to the terminal building and parking facilities aim to enhance passenger experience and accommodate a growing number of travellers. In response to complaints about long-term parking costs, a three-storey R250 million parkade will add 1 000 bays to the existing 3 000, offering more affordable and convenient options for visitors.

Looking further ahead, plans for a second runway—estimated to cost between R1 billion and R2 billion—signal Lanseria's ambitions to support larger aircraft and increased traffic, further relieving congestion at O. R. Tambo International Airport.

Positioning Lanseria as a logistics hub

Perhaps the most strategic development is the airport's planned cargo precinct. Groundbreaking for a fully-fledged air cargo hub is expected later in 2025, signalling Lanseria's bid to become a regional logistics powerhouse. For businesses in Gauteng and neighbouring provinces, this opens opportunities for faster air freight and streamlined supply chains, particularly for time-sensitive goods.

By decentralising air traffic away from O. R. Tambo, Lanseria provides a less congested, highly accessible option for freight operators and industrial businesses. Its location offers logistical advantages for northwestern Johannesburg, the North West province, and cross-border SADC markets, making proximity to the airport a strategic business asset.

Opportunities for commercial and mixed-use developments

The ripple effects of the airport upgrades extend beyond aviation and logistics.

Increased passenger numbers and improved accessibility are likely to stimulate commercial and retail growth in the surrounding precinct. New tourism-related businesses—such as shuttle services, guided tours, and leisure facilities—stand to benefit, while restaurants, cafes, hotels, and guesthouses are poised to see rising demand.

Mixed-use developments, including office parks and service-oriented commercial spaces, are expected to thrive as investors anticipate a growing flow of business and leisure travellers. Improved infrastructure and rising foot traffic could also attract national retail chains, further stimulating economic activity and creating employment opportunities.

Special Economic Zones and the wider economic vision

In tandem with the airport upgrades, the Gauteng Provincial Government is advancing the Lanseria Hi-Tech Special Economic Zone (SEZ), projected to be operational by 2030. MEC Lebogang Maile has pledged support for initiatives that will grow the provincial economy, create jobs, and enhance financial management. The current focus is on finalising the feasibility study and business case required to support the pre-designation application. Once operational, the SEZ is expected to attract high-tech industries, further enhancing the region's economic competitiveness.

A gateway to growth

The upgrades at Lanseria International Airport are more than a series of construction projects—they represent a strategic investment in the region's economic and industrial future. By combining modern aviation infrastructure with logistics capacity, commercial and mixed-use opportunities, and proximity to a future SEZ, Lanseria is positioning itself as a hub for innovation, trade, and travel in Gauteng.

For businesses, investors, and travellers alike, the transformation of Lanseria International Airport signals that Gauteng's secondary airport is ready to take flight—delivering efficiency, connectivity, and economic opportunity to the heart of South Africa.

PILATUS HANDS OVER THE FIRST PC-12 PRO

Progressive, Proven, Professional: the Pilatus Advanced Cockpit Environment ACE, based on the Garmin G3000 Prime, is at the heart of the new PC-12 PRO. Following on from the launch of the new model in spring 2025, the very first customer, Dion Weisler, recently took delivery of his brand-new aircraft and personally flew it home from Switzerland to Australia.

Weisler, former CEO of HP Inc., has relied on the Most Advanced Single for many years: the PC-12 PRO is his fourth PC-12. Having previously owned a PC-12 NG and two PC-12 NGXs – his move to the PC-12 PRO is a clear sign of his long-standing confidence in the best-performing aircraft in its category.

"To me as a pilot, you rely on two things in particular: there's the airplane, and then there's the pilot. And if something happens to the pilot, what are your options? In the PC-12 PRO, you've got the new 'Safety Autoland' function – which I think is absolutely invaluable. It keeps my family, my friends and anyone else on board safe. If something happens to me, this system automatically takes control to get the aircraft back on the ground at the nearest airport. You can't put a price on that additional peace of mind," says Weisler.

41 hours of safe flying to Australia

Dion couldn't pass up the opportunity to fly his PC-12 PRO back to Australia himself, together with one of the Pilatus pilots. The total flight time of 41 hours was split across six days, which saw them leave from Switzerland and fly via Crete, Egypt, Oman, India, Malaysia, Bali,

and Darwin, before arriving "home" in Adelaide, South Australia.

"It was an incredible learning opportunity to fly my own aircraft home over such a vast distance with a factory pilot sitting right seat. In addition to visiting all these amazing countries, it really allowed me to consolidate the crossover training within the new Garmin cockpit environment and have someone right there to ask any questions about anything that popped up. I am thrilled to own this new intuitive and highly innovative aircraft, and look forward to flying many missions in the future with it."

PC-12 PRO – The Most Advanced Single

"Every decision behind the PC-12 PRO was driven by one question: How do we create more value for our customers? From enhanced cockpit technologies to refined comfort and performance, the PC-12 PRO reflects the voices of those who fly it. It is the result of listening, learning, and delivering – a new aircraft shaped entirely around the people at the heart of Pilatus," emphasizes André Zimmermann, Vice President Business Aviation.

Image Credit: PILATUS

The PC-12 PRO is the latest version of the world's best-selling single-engine turboprop in its category. Equipped with the Garmin G3000 Prime and a completely redesigned cockpit which includes five high-resolution touchscreen displays, it offers state-of-the-art technology and comfort, coupled with a suite of new safety features which includes Safety Autoland. In a nutshell, it is The Most Advanced Single.

In a single-engine aircraft, a proven engine is the most important component – and the PC-12 PRO is equipped with the latest version of the most reliable aircraft engine ever produced: the Pratt & Whitney Canada PT6. With over 60,000 engines in use and over 400 million flight hours, the PT6 family of engines has an unrivaled track record. The PT6 engine has already been successfully tested in over eleven million flight hours with the PC-12. Like its predecessor, the PC-12 PRO is also capable of operating with sustainable aviation fuel (SAF), which enables more sustainable flying at a consistently high level of performance.

In combination with the fully automatic Electronic Propeller and Engine Control System (EPECS), the digital thrust control – or autothrottle system – reduces pilot workload, increases fuel efficiency, ensures a smoother flight experience and protects against engine overload.

Together with additional new interior options, all these enhancements make the brand-new PC-12 PRO the most technologically advanced, highest performing, most reliable aircraft in its class.

DIGITAL INNOVATION AT AIRPORTS: REAL-TIME INSIGHTS AND SEAMLESS PASSENGER PROCESSING

How digital twins and biometric technologies are transforming airport operations, efficiency, and passenger experience.

Digital Twins: Revolutionising Airport Operations

Digital twin technology is transforming airport management by creating real-time, interactive digital replicas of physical assets, processes, and environments.

These virtual models enable airports to simulate and optimise operations, enhance efficiency, and elevate passenger experience.

Real-Time Monitoring and Bottleneck Prediction

Digital twins provide a comprehensive view of airport systems, including passenger flow, aircraft movements, baggage handling, and facility operations. By integrating data from sensors, IoT devices, and operational systems, airports can monitor activity in real time and predict potential bottlenecks during peak periods. This proactive approach allows timely interventions, reducing delays and improving overall efficiency Case Study: Vancouver International Airport (YVR).

Vancouver International Airport (YVR) has emerged as a leading example of digital twin adoption. Launched in 2022, YVR's digital twin integrates real-time data from multiple sources, creating a unified virtual platform that encompasses passenger flows, aircraft movements, baggage systems, and facility conditions.

Key features include:

- **Advanced Visualization:** Both 2D and high-fidelity 3D representations allow operational teams to interact intuitively with live data and simulated scenarios Scenario Simulation: The platform supports modelling of peak travel periods, flight delays, security bottlenecks, and emergency situations. This enables airport managers to test and refine responses before real-world implementation.
- **Resource Optimisation:** By analysing live data, YVR can deploy staff and equipment more effectively, minimising delays and maximising operational efficiency.

- **Sustainability Monitoring:** The twin supports YVR's environmental goals, providing models to optimise aircraft movements and reduce greenhouse gas emissions, aligned with the airport's target of net-zero emissions by 2030

The implementation of YVR's digital twin has already led to measurable improvements in operational efficiency, decision-making, and passenger experience, while also earning industry recognition for innovation.

Predictive Maintenance and Operational Optimisation

Beyond monitoring passenger flows, digital twins facilitate predictive maintenance, analysing equipment and infrastructure performance to preempt failures. This allows airports to schedule maintenance efficiently, reducing unplanned downtime. Additionally, simulation capabilities enable the optimisation of gate assignments, security staffing, and passenger movement, especially during peak traffic periods.

Looking Forward

With the success at YVR as a benchmark, digital twins are poised to become a standard in modern airport operations worldwide. Their ability to integrate real-time data, model complex operational scenarios, and support predictive decision-making marks them as a cornerstone technology for the airports of the future.

Biometric Passenger Processing: Enhancing Efficiency and Security

Biometric technologies are increasingly being adopted in airports to streamline passenger processing and enhance security. These systems use unique biological characteristics, such as facial features and fingerprints, for identity verification.

Facial Recognition and Touchless Boarding

Facial recognition technology allows passengers to move through various checkpoints without the need to present physical documents. This touchless process reduces wait times and enhances the passenger experience. For example, Singapore's Changi Airport has implemented a system where passengers are authenticated at check-in, and biometric information is used across security, immigration, and boarding systems.

Integration with Government Databases

To expedite border control processes, biometric systems are being integrated with government immigration databases. This enables real-time verification of passenger identities, facilitating faster processing and enhancing security. The U.S. Customs and Border Protection (CBP) has introduced mobile biometric exit devices that allow officers to verify travelers' identities against law enforcement databases as they exit the country.

Privacy and Data Protection Considerations

While biometric systems offer numerous benefits, they also raise concerns regarding privacy and data protection. In September 2025, Italy's privacy watchdog temporarily halted the use of facial recognition technology at Milan's Linate Airport due to insufficient safeguards for passengers who did not consent to the program. The airport operator, SEA, is working with the authorities to address these concerns and aims to resume the service soon.

The integration of digital twins and biometric technologies is reshaping airport operations, offering enhanced efficiency, improved passenger experience, and strengthened security. Case studies like YVR illustrate how real-time digital replication and predictive analytics can optimise every aspect of airport management. Meanwhile, biometric systems are streamlining passenger processing while maintaining compliance with evolving privacy standards. As these technologies continue to evolve, airports worldwide are adopting them to meet the growing demands of modern air travel, ensuring that innovation and operational excellence move hand in hand.

Image credit: SITA

NEW CLOUD PLATFORM TRANSFORMS GLOBAL AIR TRAFFIC COMMUNICATION

SITA ATC Bridge gives air navigation authorities a faster, more secure, and cost-effective way to connect worldwide.

Air traffic control (ATC) authorities around the world continue to face challenges with messaging systems that are limited in their capabilities, operationally demanding, and slow to adapt to modern needs. These limitations can make it harder to coordinate across borders and keep pace with growing traffic demands.

With the launch of SITA ATC Bridge, an innovative and easy-to-use SaaS (Software as a Service) cloud-based digital platform, aviation stakeholders can now replace legacy systems with a secure, seamless, and simplified solution designed to maintain operational efficiency.

The platform supports Civil Aviation Authorities, Air Navigation Service Providers (ANSPs), and regulators who need fast, dependable, and scalable communication across the ICAO ATS Messaging Handling System (AMHS). By reducing the cost and complexity of legacy systems, ATC Bridge opens the door to more accessible and resilient connectivity, even for emerging markets. "Across the industry, air navigation service providers are being asked to do more with less: handle growing traffic volumes and modernize systems, often with tight budgets," said Martin Smillie, Senior Vice President of Communications and Data Exchange at SITA. "Legacy communication systems make that harder by being expensive, rigid, and complex to maintain. SITA ATC Bridge changes that. By moving to a secure, cloud-based platform, we're giving aviation authorities the flexibility, speed and resilience they need to collaborate across borders and keep pace with the demands of modern air traffic management."

A cost-effective, secure, and fully managed SaaS cloud communication platform, ATC Bridge will support global air traffic communication in a modern, agile way. It is tailored for fast deployment, budget-conscious procurement, and modern operational needs, where the exchange of large and frequent messages is becoming more mission critical and necessary. ATC Bridge delivers seamless critical scalability, security and reliability for both mature and emerging ANSPs.

ATC Bridge introduces a new ATC Message Handling System (AMHS) Gateway that makes it possible to exchange large messages securely and reliably. Because it is cloud-based, there is no need for physical installations, and users can access the system remotely from any location. This allows aviation authorities to collaborate in real time across borders and departments, making sure they are more responsive and can operate more efficiently.

The solution also lowers the total cost of ownership by removing the need for expensive hardware, software licenses, or ongoing IT maintenance. Instead, customers can choose a flexible subscription-based pricing model that scales with their needs.

Security is central to the design. The platform includes encryption, strict access controls with connection authentication, anti-virus protection and regular audits. Automatic updates keep systems aligned with international aviation standards and ICAO and IATA protocols, giving customers peace of mind that their operations remain compliant. It also provides advanced options such as anti-virus protection and connection authentication.

With ATC Bridge, aviation stakeholders gain a scalable, affordable, and resilient communication solution that strengthens stability across global air traffic operations. This new SITA service is the subject of a pending patent.

SMART AIRPORT NETWORKS: HOW AIRCRAFT ARE ADAPTING TO A-CDM AND SWIM SYSTEMS

Image credit: HU Art and Photography/Shutterstock.com

The global drive toward "smart airports" is reshaping not only how airports operate, but also how aircraft themselves must interact with a new digital ecosystem. From Johannesburg to Frankfurt, the rollout of collaborative decision-making (A-CDM), system-wide information management (SWIM) and advanced air traffic management initiatives such as SESAR in Europe and NextGen in the United States is creating a new layer of connectivity in the air transport system. The question is: what does this mean for the aircraft?

Smart airports defined

At their core, smart airport networks are data-sharing platforms. A-CDM is an IT framework that allows airports, airlines, ground handlers and air navigation service providers (ANSPs) to exchange real-time milestones such as Target Off-Block Time (TOBT), Actual Off-Block Time (AOBT), and runway sequence information. The aim is improved predictability and reduced delays.

SWIM takes this a step further. It acts as middleware, enabling structured aviation data to be published and subscribed to across multiple stakeholders. Together, these systems promise to improve the efficiency of slot allocation, turnaround times and airport surface operations — but only if the aircraft can deliver accurate, timely data into the system.

How aircraft have adapted

The good news for airlines is that most modern fleets already carry much of the required avionics. The adaptation has been less about structural modification and more about connectivity, protocols and crew procedures.

- **Surveillance reporting:** ADS-B Out, now mandated in many regions, provides precise positioning information to both ground systems and other aircraft. This constant flow of positional data underpins predictive sequencing and surface management.
- **Data link connectivity:** Systems such as ACARS, CPDLC, satellite communications and broadband links allow aircraft to transmit status updates — such as off-block time or taxi progress — directly into A-CDM systems. Some trials in Europe and the US have even tested aircraft as live nodes in SWIM networks.
- **Flight intent sharing:** FANS-equipped aircraft use CPDLC for digital clearances and trajectory intent messaging, integrating with airline operations

centres to enable more efficient flow management.

- **Procedural change:** Pilots and flight operations centres have had to adopt new processes to populate and update milestones like TOBT. In many cases, this required software updates to onboard systems rather than hardware replacements.
- **Surface operations:** Research projects under SESAR have trialled "follow-the-greens" guidance, where airport lighting and taxi routing are integrated with aircraft transponders and cockpit displays. This kind of integration highlights how smart airports require aircraft and airport systems to work in synchrony.

Why adapt?

The drivers are both regulatory and operational. ADS-B Out mandates accelerated equipage worldwide. Airlines themselves have a strong incentive: better predictability reduces holding, taxiing and fuel burn, leading to tangible cost and emissions savings. According to EUROCONTROL, A-CDM airports have seen measurable improvements in punctuality and efficiency.

Another driver is digitalisation across the wider air transport chain. As airline operations centres, ANSPs and airports become more networked, the aircraft becomes both a data source and a data consumer — a live participant in the information flow that defines a "smart" airport.

Challenges ahead

Not all fleets are equally equipped. Legacy aircraft without broadband connectivity face limitations in fully participating in SWIM-style data exchanges.

Connectivity gaps remain in certain regions, and cybersecurity is an increasing concern: a more connected aviation ecosystem also creates a larger attack surface. Ensuring data security, governance and interoperability across regions will be critical.

Looking forward

For the industry, the transition is evolutionary rather than revolutionary. Aircraft are not being re-engineered from scratch, but steadily upgraded through avionics retrofits, software updates and revised operating procedures. The focus is on making better use of the data already available onboard.

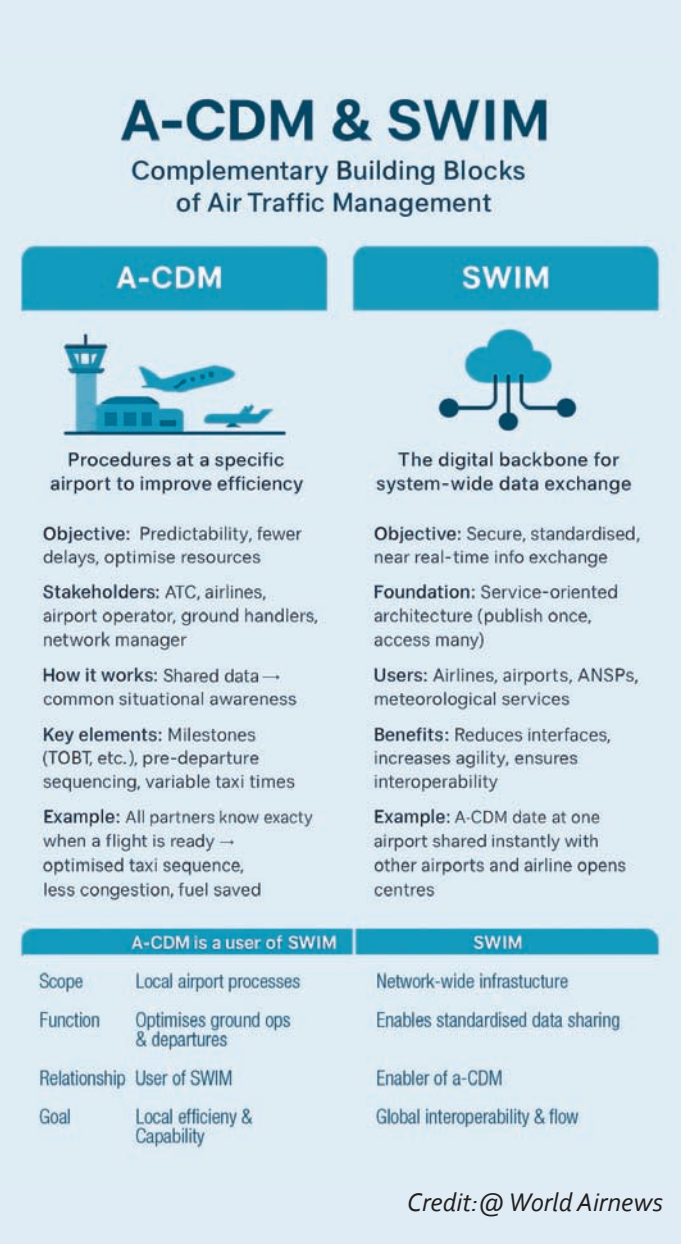
With ICAO promoting A-CDM in Africa and SWIM trials expanding globally, it is only a matter of time before airports such as Cape Town and Johannesburg implement these frameworks in full. When they do, airlines operating into South Africa will need to ensure their fleets — whether narrowbody, widebody or business jet — are ready to plug into the network.

In the words of one EUROCONTROL official: "It's not a new wing, it's a new language." For aircraft operators, that language is becoming essential to remain efficient, competitive and compliant in a smarter, more connected aviation world.

Quick Guide: Six Ways Aircraft Connect to Smart Airport Networks

1. **ADS-B Out:** Constantly broadcasts aircraft position and speed for sequencing and surface management.
2. **ACARS & CPDLC:** Digital messaging links that feed operational milestones into A-CDM systems.
3. **Satellite & Broadband Links:** Enable real-time status updates, trajectory data and crew–ground coordination.
4. **Flight Intent Messaging:** Shares planned trajectory and clearances with ATC and airline operations centres.
5. **Onboard System Updates:** Software revisions allow automatic reporting of TOBT, AOBT and other milestones.
6. **Integrated Taxi Guidance:** Trials such as "follow-the-greens" connect cockpit displays with airport surface lighting.

Source: EUROCONTROL, SESAR, ICAO initiatives



Credit:@ World Airnews


Credit: Jaromir Chalabala

NW PRO'S 'DEEPER SCAN' AIRPORT SECURITY SCREENING

UK-based software company NW Pro has unveiled an innovative electronic device screening technology, Deeper Scan, developed under the UK Ministry of Defence's Defence and Security Accelerator's (DASA) Future Aviation Security Solutions (FASS) programme.

Designed to address vulnerabilities in traditional airport security methods, which often rely on human operators to interpret complex X-ray images, Deeper Scan deploys advanced AI algorithms to automatically analyse electronic devices, comparing them against a secure database of known devices. This enables the system to detect modifications or anomalies in laptops, tablets, and phones that may indicate concealed threats. Unlike standard scanners that primarily detect suspicious chemical compositions, Deeper Scan offers a fully automated analysis, minimising the need for ongoing human supervision. The portable cabinet-based system streamlines screening, reduces operator workload, and improves the accuracy of threat detection.

Key Features of Deeper Scan

- **Rapid Scanning and Analysis**: Devices are scanned and transmitted to a cloud-based or self-hosted server for analysis in under seven seconds.
- **Automated Identification and Comparison:** The system automatically identifies scanned devices and compares them against a secure database to flag anomalies.
- **Machine Learning for Decision Making:** Detected differences are assessed using machine learning algorithms to determine potential risks, such as tampering or counterfeit components.
- **Alert System and Review Process:** Potential issues trigger alerts to operators or automatic submission to a review centre, with results returned within minutes.
- **Versatile Application:** Beyond airport security, Deeper Scan is suitable for baggage screening, cybersecurity, and any scenario requiring rapid verification of electronic devices.

Recognised for its innovation, Deeper Scan was selected as one of the UK's most innovative cybersecurity products by the Department for Digital, Culture, Media and Sport (DCMS). For further information and potential applications of Deeper Scan, visit NW Pro.

THE FUTURE OF AVIATION: SMART AIRPORTS, MEGA PROJECTS, GREEN DESIGN, AND EVTOL INTEGRATION

Artist Impression. Image credit: Heathrow

The aviation industry is undergoing a transformative shift in 2025, driven by advancements in technology, sustainability, and urban mobility. Airports are evolving into smart, sustainable hubs that not only enhance passenger experience but also contribute to environmental goals. Simultaneously, the rise of electric vertical takeoff and landing (eVTOL) aircraft is prompting the development of vertiports, signaling a new era in urban air mobility.

Smart Airports: Technology-Driven Efficiency

Smart airports are redefining operational efficiency through the integration of advanced technologies.

By 2025, approximately 45% of global airports are expected to incorporate 5G technology, enabling faster communication between systems and enhancing operational efficiency. Additionally, automated baggage handling systems and smart tags are becoming standard, allowing passengers to track their luggage in real-time via mobile devices, thereby reducing stress and improving service reliability.

In the United States, several airports are undertaking significant expansions to accommodate growing passenger numbers. For instance, Chicago O'Hare International Airport is constructing a $1.3 billion Terminal D, featuring 19 gates and advanced amenities.

Similarly, Dallas Fort Worth International Airport is expanding Terminal C, incorporating innovative megastructure modules to enhance capacity and efficiency.

Mega Airport Projects: Ambitious Global Developments

Around the world, several large-scale airport projects are underway, aiming to accommodate increasing passenger traffic and bolster economic growth. Notably, the King Salman International Airport in Riyadh, Saudi Arabia, is set to become one of the world's largest airports upon completion in 2030. Spanning approximately 57 square kilometers, the airport will feature six runways and seven terminals, with a capacity to serve up to 100 million travelers annually. The design emphasizes seamless navigation, natural elements, climate-controlled lighting, and renewable energy integration.

In Europe, Spain's airport operator Aena has announced plans to invest €12.88 billion ($15.24 billion) in airport upgrades between 2027 and 2031. This investment aims to enhance capacity and modernize terminals to manage growing passenger traffic, expected to reach 320 million by 2025. Reuters

Green Design: Sustainable Infrastructure Initiatives

Sustainable airport design focuses on reducing environmental impact through energy-efficient buildings, renewable energy sources, and effective waste and water management. For example, San Diego International Airport's Terminal 1 expansion incorporated sustainable design principles, including the use of eco-friendly materials and energy-efficient systems. Similarly, Kunming Airport in China has been developed with green and low-carbon strategies, supported by financing from the Asian Infrastructure Investment Bank.

The Airports Going Green® initiative recognizes airports that demonstrate leadership in sustainable practices. This program highlights outstanding sustainability infrastructure development and individual leadership in promoting environmentally responsible airport operations.

eVTOL and Vertiports: The Future of Urban Air Mobility

The rise of electric vertical takeoff and landing (eVTOL) aircraft is poised to revolutionize urban transportation. In 2025, the vertiport market is experiencing significant growth, with projections estimating an increase from USD 0.4 billion in 2023 to USD 10.7 billion by 2030. This expansion is driven by advancements in eVTOL technology and the development of vertiport infrastructure.

Dubai is at the forefront of this transformation, with the Dubai Road and Transport Authority (RTA) and Skyports collaborating to construct the first vertiport at Dubai International Airport. This facility will serve as a hub for eVTOL operations, integrating seamlessly with existing airport infrastructure.

In the United States, Florida has enacted legislation to promote advanced air mobility, including the development of vertiports and the integration of eVTOL aircraft into the state's transportation network. This initiative aims to position Florida as a leader in aerospace innovation and urban air mobility.

The convergence of smart technology, mega infrastructure projects, sustainable design, and urban air mobility is reshaping the future of airports. As these developments progress, they promise to enhance passenger experience, improve operational efficiency, and contribute to environmental sustainability. The integration of eVTOL aircraft and vertiports into airport ecosystems represents a significant step toward the future of urban transportation, offering new opportunities for connectivity and mobility.

As we look to the future, the aviation industry stands at the threshold of a new era, characterized by innovation, sustainability, and enhanced connectivity. The airports of tomorrow are not just transportation hubs; they are smart, sustainable, and integrated centers of urban mobility.

Hia Orchard Image credit: Hamat International Airport – Doha Qatar

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HONEYWELL'S SURF-A: TESTED AND READY FOR RUNWAY SAFETY

Honeywell is developing a new series of cockpit alerts known as "Surf-A," short for surface alert. The system is aimed at preventing collisions at or around airports. Serious aviation accidents are rare, but safety specialists have called for more advanced cockpit warnings, particularly in the busy United States aviation market.

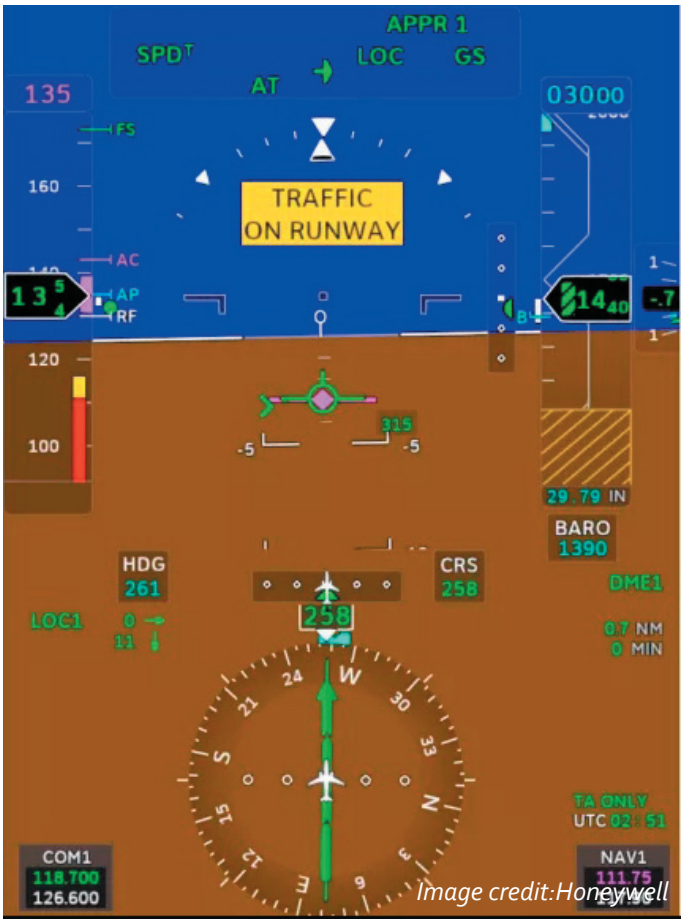


Image credit:Honeywell

Administration (FAA) to approve Surf-A in 2026. Once certified, airlines will be able to add it as an option to Honeywell's existing runway safety products. These include the SmartRunway and SmartLanding systems, already in use with carriers such as Alaska Airlines and Southwest Airlines.

Successfully Tested on the Boeing 757

Honeywell has successfully tested the Surface Runway Traffic Awareness System (SURF-A) on its Boeing 757 test aircraft. The aircraft has been used globally to demonstrate the new technology, showcasing its potential to reduce runway incursions.

SURF-A is designed to act as a third set of eyes for pilots, providing real-time alerts of potential hazards during taxi, take-off and landing. The system integrates into existing cockpit displays, using algorithms and position data to identify possible incursions or collisions and alert crews in time to react.

Honeywell Aerospace Technologies President and CEO Jim Currier described the milestone as significant in the company's pursuit of safety:
"We recognize this milestone as a significant accomplishment in our relentless pursuit of safety. However, this is just the beginning. Our vision extends far beyond this test. We will not rest until this pivotal technology is a standard feature in the cockpits of all aircraft flying passengers today and tomorrow, providing pilots with the crucial support they need to ensure the safety of every flight."

Runway Incursion Concerns

Runway incursions — when an unauthorised aircraft or vehicle is present on a runway — remain a safety concern in the aviation industry. Though rare, such incidents can have severe consequences. By alerting pilots to these hazards before they become threats, SURF-A provides an additional safeguard during the most critical phases of flight.

SmartRunway and SmartLanding

Surf-A builds on Honeywell's SmartRunway and SmartLanding technologies, which form part of the Enhanced Ground Proximity Warning System (EGPWS). These software options are designed to increase flight crew situational awareness during taxi, take-off and landing.

In addition to audio alerts, SmartRunway and SmartLanding provide visual messaging to deliver timely information and reduce unnecessary cockpit noise.

The systems currently provide advisories covering a wide range of runway and approach conditions:

- **Ground operations:** Approaching Runway, On Runway, Takeoff Flaps, Extended Hold on Runway, Insufficient Runway Length, Short Runway Takeoff, Distance Remaining (Reject Takeoff), Taxiway Takeoff (advisory and caution).
- **Approach and landing:** Approaching Runway, Insufficient Runway Length, Short Runway Landing, Taxiway Landing, Distance Remaining (Landing & Rollout), Runway End (<100 feet), Landing Flaps (<500 feet).
- **Approach stability:** Too High, Too Fast, Unstable Approach, Long or Deep Landing, Distance Remaining (Long Landing), Altimeter Setting alerts during Approach and Climb.

Honeywell plans to introduce Surf-A as an extension of this suite once FAA approval is granted. Airlines will be able to incorporate the new alerts as an additional tool to support safe ground and runway operations.

TRENDS RESHAPING BAGGAGE HANDLING

As passenger volumes climb steadily beyond pre-pandemic levels, airports worldwide are being pushed to rethink one of their most complex challenges: baggage handling. The smooth movement of millions of bags through check-in, screening, sortation, and onto aircraft is critical to both operational efficiency and passenger satisfaction. Yet this is also the area where inefficiencies are most visible when things go wrong.

Today, a new wave of technology is transforming baggage systems — not only behind the scenes but also in ways passengers can directly experience. From 3-D CT scanning to AI-powered digital twins, these innovations are setting new standards for speed, security, and reliability.

CT (3-D) Screening at Scale

Airports across Europe, the United States, and Asia are deploying computed tomography (CT) scanners at checkpoints and in hold-baggage facilities. The technology, which produces detailed 3-D images, allows laptops and liquids to remain in bags in many implementations. According to International Airport Review, this shift significantly reduces manual bag inspections and speeds passenger throughput — critical at peak travel times.

Real-Time Tracking with RFID and IoT

The rollout of RFID and IoT-based baggage tracking is gathering pace, driven in part by IATA Resolution 753, which mandates baggage tracking at defined journey points. IATA has stated that "the ability to monitor baggage in real time is central to reducing mishandling." Airlines and airports are responding with permanent electronic bag tags, smart labels, and location sensors, giving passengers more control and visibility over their luggage than ever before.

Robotics and Fully Automated Baggage Halls

Behind the conveyor belts, automation is accelerating. Vendors such as Vanderlande are publishing white papers on the concept of "fully automated baggage halls," featuring robotic sortation, autonomous ULD movers, and AI-powered batching systems. These solutions not only improve accuracy but also help mitigate the impact of labour shortages, a growing challenge in many hubs.

Image credit:Pexels

Predictive Analytics and Digital Twins

Baggage systems are increasingly supported by advanced data-driven tools. Airports are deploying digital twins — virtual models of entire baggage handling systems — to simulate scenarios, plan capacity, and test operational strategies. Machine learning algorithms are being applied to predict throughput bottlenecks and perform preventive maintenance, reducing downtime and costly delays.

Modular and Scalable Systems

In many cases, airports must work with existing infrastructure rather than build from scratch. Vendors such as Daifuku Airport Technologies are focusing on modular upgrades, offering scalable systems that integrate with legacy equipment. This approach enables airports to enhance efficiency while minimising disruption to daily operations — a pragmatic pathway for facilities managing both growth and tight budgets.

A New Era of Baggage Handling

These developments represent more than just technical upgrades. Together, they are reshaping baggage handling into a strategic area of airport operations, where efficiency, transparency, and passenger experience intersect. The convergence of CT screening, RFID tracking, robotics, AI, and modular design reflects a sector intent on building resilience while meeting rising traveller expectations.

For passengers, this means shorter queues, fewer lost bags, and more predictable journeys. For airports and airlines, it means systems that are not only smarter but also future-ready. As industry leaders put it, the baggage hall is no longer just a back-end operation — it is fast becoming a showcase for innovation.

HOW CT SCANNING AND RFID TRACKING ARE TRANSFORMING AIRPORT BAGGAGE HANDLING

Baggage handling has long been one of the most complex and high-stakes operations in any airport. Every day, thousands of bags traverse elaborate conveyor networks, automated sorters, and security screening stations before arriving at the aircraft hold or reclaim area. For passengers, baggage issues can be a source of frustration. For airports and airlines, errors or delays represent operational headaches, financial losses, and reputational risks. In recent years, two technologies have emerged as game-changers in addressing these challenges: computed tomography (CT) scanning and radio-frequency identification (RFID).

CT scanning is rapidly replacing traditional two-dimensional X-ray machines in both passenger checkpoint and hold-baggage screening. Unlike conventional systems, CT scanners produce three-dimensional images, allowing security personnel to detect prohibited items without the need to manually open bags in most cases. This not only improves passenger experience—allowing laptops and liquids to remain in bags—but also accelerates throughput, a critical factor as airports handle ever-increasing passenger volumes.

Vanderlande, BEUMER Group, and Daifuku Airport Technologies are among the leading suppliers integrating CT solutions into their end-to-end baggage handling systems (BHS). Beyond screening, these systems are tightly coupled with conveyor and sortation technology, enabling faster routing and more accurate baggage placement. The combination of CT hardware, software, and automated conveyors represents a major step toward fully integrated, intelligent baggage halls.

Tracking Bags from End to End

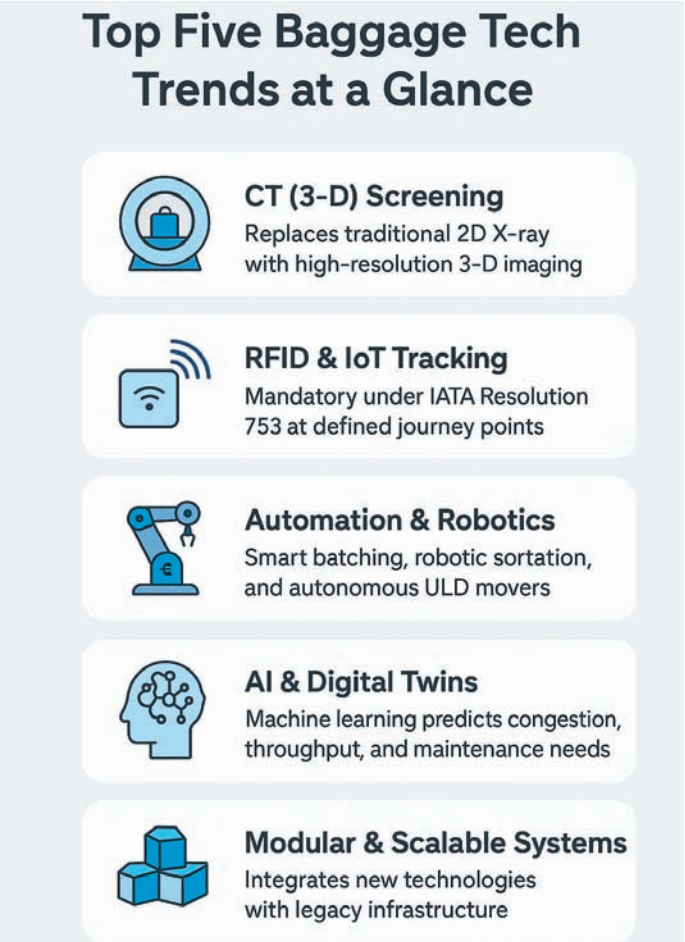
While screening addresses safety, RFID technology tackles visibility. Passengers increasingly expect real-time updates on their bags, and airlines and airports are under regulatory pressure to comply with IATA Resolution 753, which mandates bag tracking at four key points in the journey. RFID tags, often embedded in bag tags or luggage labels, communicate with sensors along the BHS, providing near-instant feedback to passengers and operations teams alike.

Real-time tracking reduces mishandled baggage, enables predictive analytics for potential congestion, and allows airport staff to pre-emptively resolve issues. The combination of CT screening and RFID tracking is, in essence, creating a baggage hall that is simultaneously smarter, faster, and more transparent.

Automation and Intelligence in Action

Modern baggage halls are increasingly automated. Smart sorters, autonomous bag movers, and robotics are replacing labour-intensive processes. Predictive algorithms can anticipate bottlenecks, while digital twins—virtual replicas of baggage systems—allow planners to simulate capacity, test new layouts, and fine-tune operations without disrupting daily activity.

BEUMER's Crisplant systems, Vanderlande's high-speed sorters, and Daifuku's modular solutions are examples of how vendors are integrating hardware, software, and AI-driven analytics. These systems are



designed for both new airport projects and retrofits, helping legacy terminals keep pace with evolving security requirements and passenger expectations.

Designing for Efficiency and Safety

Behind every automated conveyor and scanner lies a carefully orchestrated design process. Mechanical engineers, software developers, and civil architects collaborate to ensure optimal bag flow, structural integrity, and regulatory compliance. Fire safety, acoustic management, and service accessibility are all considered alongside operational efficiency. Systems integrators manage the commissioning, testing, and training, ensuring that airports can operate smoothly from day one.

The baggage handling market is experiencing steady growth, with analysts projecting continued expansion through 2030. Asia-Pacific hubs, in particular, are investing heavily in next-generation BHS technology, while major international airports in Europe and North America are gradually retrofitting existing facilities.

CT scanning and RFID tracking are already redefining passenger expectations. As airports embrace automation, AI, and modular design, baggage handling is moving from a back-of-house operational concern to a strategic asset in the passenger journey. Smarter baggage halls mean fewer lost bags, faster connections, and a more seamless travel experience—a tangible example of how technology can quietly transform one of aviation's most complex operations.

HAYLION AND SKYPORTZ TEAM UP TO LAUNCH VERTIPAD

Pioneering modular landing solutions aim to accelerate urban air mobility in Shenzhen and beyond.

China-based Haylion Technologies and Australia's Skyportz have announced a strategic collaboration to bring Skyportz's patented vertipad landing infrastructure to the rapidly evolving Chinese advanced air mobility (AAM) market. The partnership, revealed at the AAM Asia Symposium in Japan, is set to focus initially on prototype installations in Shenzhen, a city recognised as a hub for low-altitude economic innovation.

The joint initiative combines Haylion's expertise in electric Mobility as a Service (eMaaS) and energy hardware with Skyportz's modular vertipad platform, creating infrastructure solutions designed specifically for dense urban environments.

"Our collaboration with Skyportz is a key step in supporting the safe, scalable, and sustainable deployment of urban air mobility in China," said a spokesperson for Haylion Technologies. As a founding member of the Shenzhen AAM Group, Haylion is actively involved in the city's ambitious infrastructure plan, which aims to establish over 1,000 vertiports to facilitate eVTOL operations.

Skyportz's modular vertipad design addresses critical challenges such as downwash management, fire safety, and scalability. Lightweight, cost-effective, and adaptable, the platform is engineered to integrate seamlessly into various urban settings, supporting the safe operation of eVTOL aircraft while accelerating the development of AAM infrastructure both in China and globally.

"By combining Haylion's local operational expertise and Skyportz's innovative vertipad technology, we can deliver urban air mobility infrastructure that meets the needs of growing cities," said a Skyportz representative.

The partnership represents a significant step toward enabling dense urban centres to accommodate eVTOL traffic safely, efficiently, and sustainably, aligning with global efforts to integrate AAM into the broader transport ecosystem. Shenzhen, with its proactive policy environment and existing infrastructure ambitions, is expected to serve as a model for other Chinese cities considering the rollout of similar vertiport networks.

SAF TECHNOLOGY ROLLOUT, NOT FEEDSTOCK, IS THE MAIN BOTTLENECK TO NET ZERO, SAYS IATA

A new study from the International Air Transport Association (IATA), conducted in partnership with Worley Consulting, confirms that sufficient sustainable aviation fuel (SAF) feedstock exists to enable the global airline industry to achieve net zero CO_2 emissions by 2050. The report emphasises that the critical barrier is not a shortage of feedstock, but the slow pace of technology rollout and infrastructure development required to scale SAF production.

"We now have unequivocal evidence that if SAF production is prioritised, feedstock availability is not a barrier to the industry's decarbonisation pathway," said Willie Walsh, IATA Director General. "There is enough sustainable feedstock to reach net zero by 2050. What is missing is shovels in the ground now to accelerate technology deployment."

SAF in the Context of Global Aviation Decarbonisation

Aviation is responsible for around 2–3% of global CO_2 emissions, and with demand projected to grow steadily, decarbonisation is a pressing challenge.

SAF has emerged as a key solution, offering a drop-in alternative to conventional jet fuel while meeting strict sustainability standards. Unlike fossil fuels, SAF can significantly reduce lifecycle carbon emissions, and its use is recognised under international frameworks such as ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

Under CORSIA, airlines can use SAF to meet emissions reduction targets, with many carriers already incorporating biofuels and power-to-liquid (PtL) e-fuels into operations. Early adopters, particularly in Europe and North America, are establishing supply agreements and investing in on-site SAF facilities, signalling a growing commercial commitment.

However, the global uptake of SAF remains modest. In 2025, total SAF production is estimated at just 2 million tonnes, compared with the 500 million tonnes annually that airlines will require by 2050 to achieve net zero, according to IATA's Net Zero Roadmaps.

Key Findings from the IATA Study

- **Feedstock availability is sufficient:** Biomass and waste residues, including used cooking oils, have the potential to support more than 300 Mt of bio-SAF by 2050. PtL e-SAF could provide an additional 200 Mt.
- **Main barrier:** Technology rollout, particularly for PtL pathways, limits the ability to convert feedstock into commercial SAF at scale.
- **Infrastructure and policy gaps:** Scaling up SAF production requires investment in conversion facilities, logistics, renewable energy, hydrogen, and carbon capture infrastructure. Coordinated policy frameworks are essential to create a fully functioning SAF market.
- **Regional leadership:** North America, Brazil, Europe, India, China, and ASEAN nations are expected to account for the majority of global SAF output, with Africa also emerging as a potential contributor through waste and residue feedstocks.

"SAF production presents a unique opportunity for governments and the private sector to create jobs, stimulate economies, and enhance energy security," said Marie Owens Thomsen, IATA's Senior Vice President Sustainability and Chief Economist. "Policy certainty and cross-sector collaboration are essential. Delays now will make achieving net zero even more challenging."

Africa's Role in the SAF Future

While much of the global SAF production is projected to occur in North America, Europe, and Asia, Africa's contribution is poised to grow, particularly through the utilisation of waste and residue biomass. The study highlights that sub-Saharan Africa and the Middle East together could provide around 220 Mt of feedstock by 2050, equating to roughly 14% of the global total.

This presents not only a decarbonisation opportunity but also a strategic one: investing in SAF production infrastructure across Africa could support local employment, enhance energy security, and provide a sustainable fuel source for both regional and international carriers. Pilot projects are already underway in South Africa and Morocco, signalling growing interest in unlocking the continent's SAF potential.

Bridging the Gap: Bio-SAF and Power-to-Liquid e-Fuels

IATA's study shows that while bio-SAF will account for a large share of future SAF, PtL e-fuels are critical to closing the remaining gap. PtL production requires reliable access to low-cost renewable electricity, hydrogen, and carbon capture, and represents an opportunity for the energy sector to align with global decarbonisation goals.

The study estimates that by 2050, nearly 200 Mt of e-SAF could be produced globally, assuming sufficient infrastructure investment and supportive policy frameworks. Achieving this level of production would require doubling current global renewable energy capacity.

An Urgent Call to Action

Despite SAF's potential, achieving 500 Mt of annual production by 2050 will demand a coordinated effort across the entire value chain: governments, investors, energy producers, and airlines must act together.

The study underscores the need for:

- Accelerated technology deployment across all SAF pathways.
- Enhanced infrastructure and logistics to move feedstock efficiently.
- Strong and predictable policy frameworks to de-risk investment.
- Regional leadership and cross-sector collaboration to drive global SAF output.

"We have just 25 years to turn this proven potential into reality," Walsh said. "The potential to turn SAF feedstock into real SAF production is in the hands of policymakers and business leaders. The time to act is now."

INNOVATIONS IN AIRPORT INFRASTRUCTURE: ENHANCING EFFICIENCY AND PASSENGER EXPERIENCE

Smart Terminal Design: Adapting to Growing Demands.

Modern airports are embracing modular and flexible terminal designs to accommodate increasing passenger numbers and evolving needs. These designs allow for scalable expansions, ensuring that terminals can grow in line with demand without significant disruptions.

Modular and Flexible Terminals

Modular construction techniques enable airports to quickly adapt to changing requirements. These structures are designed for easy expansion, allowing for the addition of new gates, lounges, and amenities as needed. This approach not only reduces construction time but also minimizes operational disruptions during upgrades.

Integrated Retail and Leisure Spaces

To enhance the passenger experience, airports are integrating shopping and leisure areas within terminal designs. These spaces, often resembling shopping malls, offer a variety of retail outlets, dining options, and entertainment facilities. This integration aims to create a more enjoyable and convenient environment for travelers.

Sustainable Building Practices

Sustainability is a key consideration in modern airport terminal design. The use of green-certified construction materials and energy-efficient systems helps reduce the environmental impact of airport operations. Airports are adopting renewable energy sources, implementing water conservation measures, and utilizing sustainable materials to create eco-friendly terminals.

Runway and Taxiway Innovations: Enhancing Safety and Efficiency

Advancements in runway and taxiway design are crucial for improving airport operations and safety.

Advanced Pavement Technologies

The Federal Aviation Administration (FAA) has been researching and implementing advanced pavement technologies to extend the lifespan of runways and taxiways. Techniques such as asphalt reclamation, concrete recycling, and the use of high-performance materials contribute to more durable and cost-effective pavements.

Automated Ground Vehicle Systems (AGVS)

The integration of AGVS is revolutionizing ground operations at airports. These systems, which include self-driving vehicles for aircraft guidance and baggage handling, enhance efficiency and safety. The FAA has been actively testing and promoting the use of AGVS for various airport functions, including aircraft towing and baggage transport.

Cargo Infrastructure Developments: Meeting Evolving Demands

With the growth of e-commerce and global trade, airports are investing in specialised cargo infrastructure to handle diverse goods efficiently.

Dedicated E-Commerce Handling Facilities

Airports are developing dedicated facilities to manage the increasing volume of e-commerce shipments. These facilities are equipped with advanced sorting systems and storage capabilities to handle parcels efficiently. For instance, Frankfurt Airport has expanded its e-commerce handling facility to support cross-border logistics.

Cold Chain Facilities for Pharmaceuticals and Perishables

The transportation of temperature-sensitive goods, such as pharmaceuticals and perishable items, requires specialized infrastructure. Airports are establishing cold chain facilities equipped with temperature-controlled storage and handling systems to ensure the integrity of these sensitive shipments. Hong Kong International Airport's COOLPORT facility is a prime example of such infrastructure, designed to handle perishables and pharmaceuticals efficiently.

Integrated Logistics Hubs

Airports are also developing integrated logistics hubs that combine cargo handling, warehousing, and transportation services in a single location. These hubs streamline operations and improve the efficiency of cargo movements. The upcoming Noida International Airport in India plans to open a multi-modal cargo hub alongside its passenger terminal, featuring specialized facilities for perishables, pharmaceuticals, and e-commerce items.

These advancements in airport infrastructure are setting new standards for efficiency, sustainability, and passenger experience. As airports continue to evolve, the integration of innovative technologies and designs will play a pivotal role in shaping the future of air travel.

Image Credit: Getty Images Singapore Changi

There's a reason Singapore's Changi airport has sat atop the best airport list for a few years running. It is practically an amusement park with all the attractions and amenities it offers, from butterfly gardens to cinemas to gaming rooms.

CONNECTING AFRICA AND THE WORLD THROUGH MULTI-ORBIT INNOVATION

Gogo takes flight with multi-orbit, multi-band connectivity, bringing reliable high-speed broadband to Africa's business aviation sector and beyond.

In late 2024, Gogo confirmed its acquisition of Satcom Direct (SD), a move that has transformed the business aviation connectivity landscape. Now entering its third quarter as a single entity, the combined company is demonstrating clear benefits for customers, partners, and business operations alike.

SD brought to the table a global footprint in satellite communications for business aviation, military, and government clients. Its expertise in large-cabin, long-range aircraft leveraged Ka-band and Ku-band GEO networks, complemented by a highly regarded customer service network. Meanwhile, Gogo Business Aviation had established a strong presence in North America with Air-To-Ground (ATG) connectivity and was pioneering the Gogo Galileo antennas, designed to optimise Low Earth Orbit (LEO) networks for new aircraft categories.

The launch of the Gogo Galileo HDX has been a pivotal milestone. For the first time, light jets and upwards now enjoy high-speed broadband connectivity, supported by a global, multilingual customer service team. By aggregating both companies' product portfolios, Gogo now offers a purpose-built, multi-orbit, multi-band connectivity service—backed by 24/7/365 support, training, cybersecurity, and an ecosystem of services.

Previously, operators had to engage different providers depending on flight routes. North American flights could rely on Gogo's ATG services, while international operations required SD's GEO network solutions, often limited to large-cabin aircraft. SD's response was the Plane Simple antenna series, offering lighter, compact tail-mount and fuselage-mount terminals to extend GEO network accessibility to more aircraft types.

Simultaneously, LEO networks moved from concept to reality through partnerships with Eutelsat OneWeb.

Both Gogo and SD were developing electronically steered, fuselage-mounted antennas (ESA) to support low-latency, high-speed broadband via the enterprise-grade LEO constellation. Combining forces accelerated technical and commercial advancements by years, establishing Gogo as the world's only multi-orbit, multi-band connectivity provider for business and military aviation.

Advantages for African Business Aviation

Africa's vast distances and diverse fleet mix make reliable connectivity a necessity. Gogo has applied lessons from government clients to business aviation, implementing a PACE strategy—Primary, Alternative, Contingency, Emergency—to ensure continuous connectivity. Multiple redundancies across LEO, GEO, and ATG networks allow aircraft to stay connected regardless of location, while human support teams and AI-driven systems optimise data transmission and mitigate coverage interruptions in real time.

Large-cabin, long-range jet customers in Africa can now fly with confidence, assured that connectivity networks are dedicated and supported around the clock.

Technology That Fits Any Aircraft

The challenge of antenna size has been solved with purpose-built solutions. In May 2025, Gogo received the STC for its Galileo HDX half-duplex antenna, followed by the FDX full-duplex antenna. These compact, flat-panel antennas can be mounted on aircraft fuselages, enabling high-speed broadband for smaller airframes such as the Embraer Phenom 300 and Pilatus PC-24, while still supporting large-cabin, long-range jets. This flexibility is particularly suited to Africa's business aviation market, which operates a rich mix of aircraft sizes.

Leveraging Long-Standing Satellite Partnerships

Gogo maintains strong partnerships with Viasat, Intelsat (SES), and Eutelsat OneWeb, evolving business aviation connectivity over decades. Enterprise-grade solutions ensure passengers do not share bandwidth with residential or commercial users. Insight into satellite networks allows Gogo's Network Operations Centre (NOC) to anticipate issues, mitigating interruptions before they occur. Combined with AI and machine learning, this proactive approach strengthens connectivity reliability—a critical factor for high-paying business aviation customers.

Future-Proofing Connectivity

Investing in connectivity is a long-term commitment for aircraft owners. Gogo's future-proofed technology ensures most updates occur through modems rather than complete hardware replacements, minimising downtime and costly upgrades. This approach provides predictability in operations, maintenance, and budgeting, further enhancing the appeal of multi-orbit, multi-band connectivity for African business aviation. By uniting Gogo and Satcom Direct, the company has created a seamless, globally supported connectivity ecosystem. For Africa, this means reliable, high-speed broadband across the continent, regardless of aircraft size or destination—a connectivity breakthrough that truly spans the skies.

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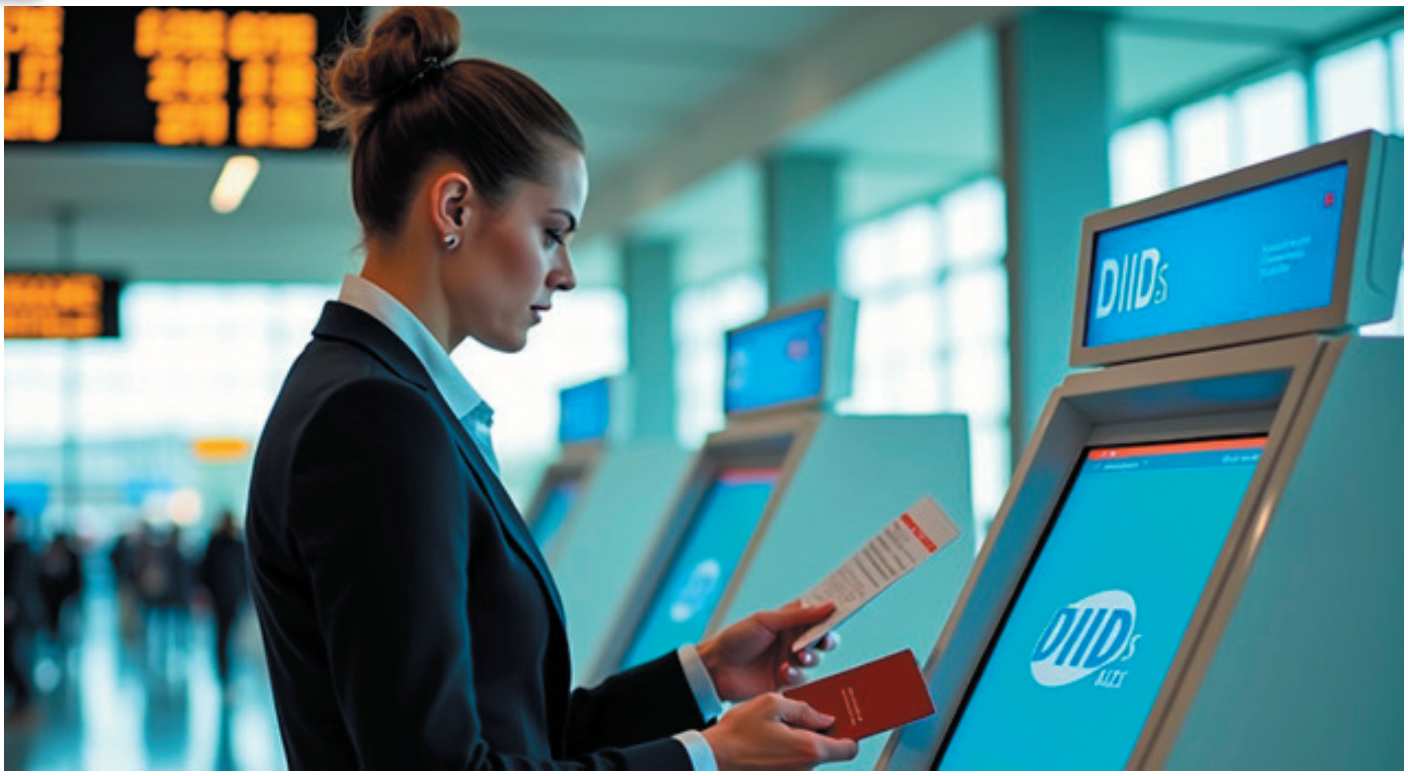


UNLOCKING SEAMLESS TRAVEL

Why digital identity is the future of aviation. As the aviation industry enters a new phase of digital transformation, the question is no longer whether airports and airlines should modernise identity verification—but how fast they can do it. At the heart of this shift lies a suite of technologies that promise to redefine how travelers move through airports: Verifiable Credentials (VCs) and Decentralised Identifiers (DIDs).

This was the central theme of Leaders Week, a high-level forum hosted by Qantas in March 2025, bringing together senior aviation stakeholders and government representatives from Australia, Canada, China, New Zealand, the United Kingdom, and the United States. The collective message that emerged was clear: the aviation sector must move urgently and collaboratively to adopt digital identity systems that enhance both security and passenger experience.
Security, Trust, and Efficiency in a Borderless World
Today's identity verification processes are often complex, manual, and inconsistent across borders. Physical documents remain vulnerable to fraud and human error, and redundant security checks continue to create friction at every step of the journey.

Implementing digital identity tools—such as VCs and DIDs—offers a transformative alternative.

Verifiable Credentials are tamper-evident, cryptographically secure digital representations of identity data issued by trusted authorities. When paired with Decentralised Identifiers, these credentials empower passengers to present proof of identity without handing over personal data unnecessarily or relying on centralized databases.

This architecture addresses multiple pain points in the current system. It enhances document integrity, reduces the risk of identity theft and unauthorized access, and streamlines verification processes. Most importantly, it allows passengers to move through borders with fewer interruptions, while maintaining the highest standards of data protection and regulatory compliance.

A Common Vision with Global Standards

The momentum for digital identity in aviation isn't happening in a vacuum. Initiatives like IATA's One ID and ICAO's Digital Travel Credential are laying the groundwork for a globally harmonized identity ecosystem. The vision is ambitious but achievable: a seamless, paperless, and privacy-respecting journey from curb to gate and across borders.

These frameworks provide technical and policy blueprints that countries and industry stakeholders can align with. However, implementation remains uneven, and scaling these solutions requires more than just consensus. It demands investment in infrastructure, regulatory alignment, and coordinated stakeholder engagement across the aviation value chain.

Piloting the Future: From Concept to Reality

One of the most promising developments in this space is the growing number of digital identity pilots taking place at major international hubs. These programs are helping governments test and refine technologies before full-scale deployment. They also serve as invaluable case studies for how digital ID can improve operational efficiency, reduce congestion, and enhance the passenger experience.

To be successful, however, these efforts must go beyond testing technology. They require planning for change management, ensuring staff readiness, and conducting rigorous journey simulations to assess real-world impact. The benefits of these pilots extend beyond airports. Lessons learned can be applied to other sectors such as immigration, customs, and national ID programs.

At AviaPro Consulting, we understand that digital identity isn't just a technology upgrade—it's a fundamental shift in how aviation systems operate. That's why we work closely with governments, airports, and airlines to build strategies that are resilient, scalable, and aligned with international best practices.

Our support spans the entire lifecycle of digital identity transformation:

- We advise on digital ID strategy and policy, helping clients navigate the evolving landscape and align with ICAO and IATA guidance.
- We provide technology integration services, ensuring that VC and DID tools are implemented securely within existing systems.
- We conduct passenger journey mapping and simulation to anticipate challenges and optimize the user experience.
- We lead capacity building and change management efforts to prepare teams and align internal operations.
- And we manage end-to-end pilot programs, from initial planning through testing, deployment, and post-implementation review.

Digital identity has moved from the margins to the mainstream of aviation innovation. It is no longer a question of "if," but "how quickly."

AviaPro helps clients navigate this critical transformation, ensuring that security, efficiency, and trust remain at the core of global air travel. Contact AvioPro for more information.

THE HIDDEN CHALLENGE BENEATH AIRCRAFT: – WHY BELLY CLEANING MATTERS

Every few months, commercial aircraft undergo a comprehensive wash—a process that can consume up to 11,000 litres of water and take several hours to complete. For aircraft operating in harsh climates or serving high-pollution routes, this schedule can tighten to monthly cycles. Yet, amid these regular maintenance routines, one area often goes overlooked: the aircraft belly, which accumulates dirt faster than any other surface.

For airlines, this is far more than a cosmetic concern. The buildup is a complex mixture of hydraulic fluids, engine oils, runway residue, and atmospheric pollutants, which can add weight, reduce fuel efficiency, and obscure critical inspection areas. "This is why you need to pay close attention to the aircraft's belly when cleaning," says Veronika Andrianovaite, Chief Commercial Officer of Nordic Dino Robotics.

The Science of Belly Contamination

The aircraft belly becomes a magnet for contamination through a combination of mechanical, environmental, and aerodynamic factors. According to Andrianovaite, the primary culprits originate from the aircraft itself:

- Hydraulic systems, operating at pressures exceeding 3,000 PSI, can leak and form a fine mist during gear retraction. This creates a sticky base layer that attracts other contaminants.
- Engine oils and combustion byproducts are channelled along airflow patterns directly onto the underside of the fuselage.

Ground operations exacerbate the problem. During takeoff and landing, high-speed tires fling rubber particles, asphalt residue, and oils into the belly's path. At cruise altitude, atmospheric pollutants, industrial emissions, and volcanic ash adhere to the sticky surface.

"Aerodynamic forces create specific concentration zones where vortices trap particles, while temperature

variations during flight cycles bake these deposits onto the aluminum, making them increasingly difficult to remove," Andrianovaite notes.

The Hidden Costs of a Dirty Belly

A grimy belly is more than an eyesore—it carries significant operational costs. Weight penalties alone can increase fuel consumption by 1.1 to 4.4%, depending on the type and extent of contamination. In one comparative study, two B747s flying between Amsterdam and New York showed that the recently cleaned aircraft saved half a ton of fuel, equivalent to 0.5% on the same route.

"When multiplied across thousands of flights annually, the accumulated grime on aircraft bellies represents millions in unnecessary fuel burn," Andrianovaite adds. With fuel representing 25–30% of operating costs, the impact is substantial.

Contamination layers also pose hidden corrosion risks. The mix of hydraulic fluids, salts, and pollutants can attack the fuselage, often concealed under thick grime. Critical components like drain valves, sensors, and structural joints may hide cracks or defects that are immediately visible on a clean surface.

Modern Solutions: Robotic Belly Cleaning

Thoroughly cleaning every inch of an aircraft requires reach and flexibility. While automated washing systems handle fuselage sides and tops effectively, the belly presents access challenges, particularly around landing gear bays, antennas, and drain masts. Systems suitable for an A320 may leave untouched areas on a 777, for example.

Advanced robotic cleaning systems solve this by providing precise arm movement and controlled pressure, with rotating brushes applying a water-detergent mix directly to all surfaces, including the belly. Nordic Dino's robotic solutions follow this approach, enabling operators to eliminate hard-to-reach contaminants without risking damage to sensitive components.

About Nordic Dino

Nordic Dino is a world leader in self-contained robotic aircraft cleaning systems, recognised globally for driving sustainability and efficiency in aviation. Part of the Avia Solutions Group, which operates a fleet of 209 aircraft through subsidiaries including SmartLynx, Avion Express, and BBN Airlines Indonesia, Nordic Dino supports the broader group's aviation services ranging from MRO and crew training to ground handling. The group is backed by 14,000 highly skilled professionals worldwide.

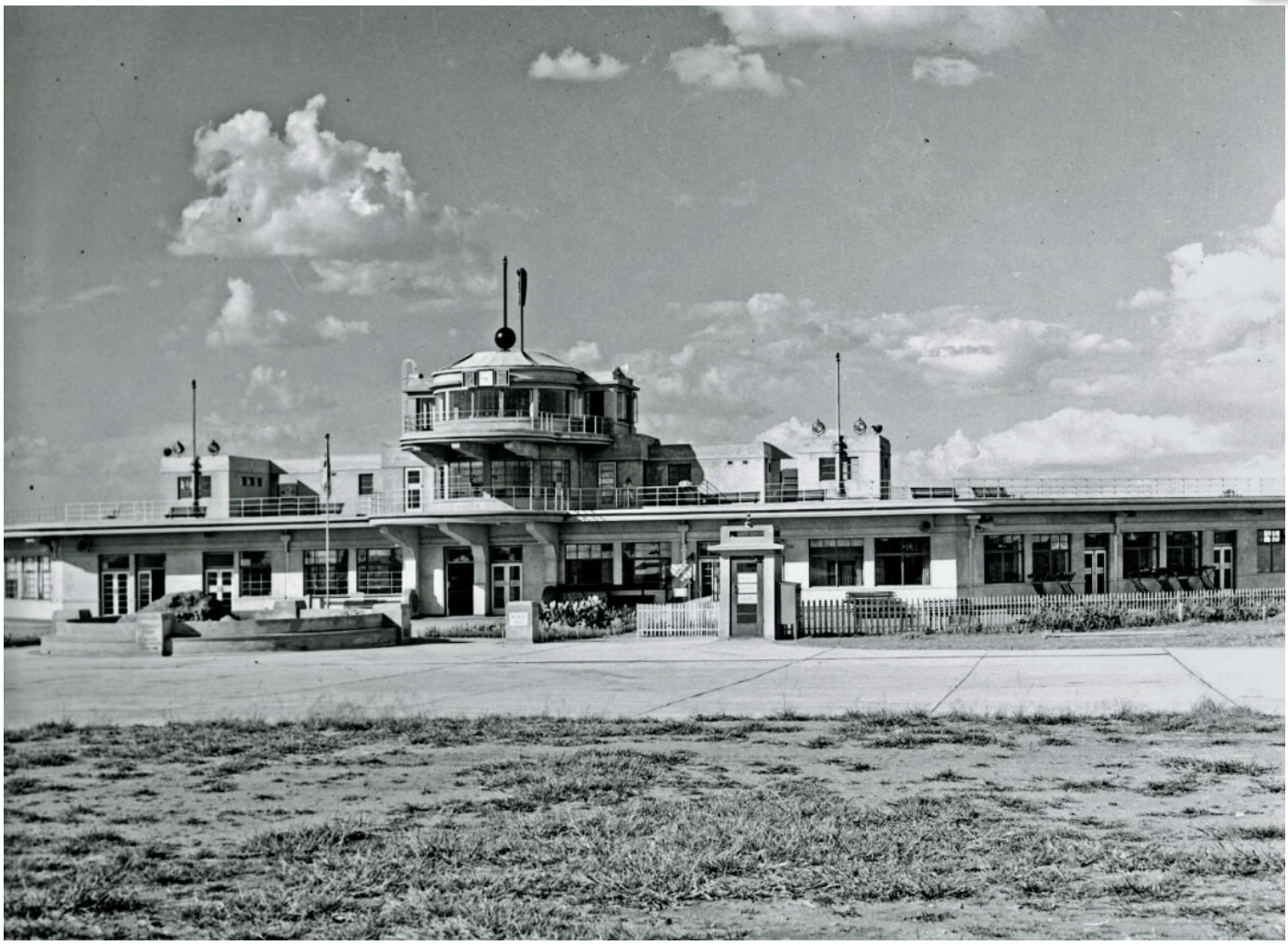
With innovative robotic belly cleaning systems, Nordic Dino ensures aircraft remain lighter, more fuel-efficient, and safer, preserving both operational performance and long-term asset value.

For more information, visit www.nordicdino.com and www.aviasg.com.

RAND AIRPORT: GERMISTON'S ART DECO SENTINEL BESIDE VICTORIA LAKE

By Keith Fryer

On Johannesburg's eastern edge, overlooking Victoria Lake, stands Rand Airport — a landmark that embodies South Africa's aviation heritage. From its beginnings as a grass strip to its recognition as a national monument, Rand has hosted Imperial Airways airliners, wartime training, the rise of South African Airways (SAA), and today remains home to vintage aircraft, a vibrant aviation museum, and several flight schools.



From Kimberley to Germiston

The roots of South African aviation stretch back to Kimberley, where John Weston and Major Alistair Miller established the first flying school in 1913. Early aviation was primarily military in focus, training pilots for the Union Defence Force. But by the 1920s, civil aviation was expanding rapidly. With mail routes opening, aircraft improving, and commercial flying gaining ground, the demand for a dedicated civilian aerodrome in Johannesburg became pressing.

Why Germiston?

By the late 1920s, Johannesburg was South Africa's economic hub, and industry leaders wanted an airfield closer to the city's goldfields. The Transvaal Chamber of Mines and the Germiston Municipality backed the idea, and Rand Airport was formally established in 1929. What set Rand apart was its forward-looking design: it was purpose-built for scheduled passenger and mail services, rather than being converted from a military field.

Rand quickly became a hub of commercial aviation. Its Art Deco terminal, designed to resemble an aircraft, symbolised its modern, civilian role. Most significantly, it became the headquarters for South African Airways in 1935, cementing its place at the heart of the nation's aviation network until larger fields such as Palmietfontein and, later, Jan Smuts International (today O.R. Tambo) took over.

SAA Plants Its Flag

Following the absorption of Union Airways into government ownership, South African Airways was formed in 1934. Within a year, SAA had moved its head office to Rand. The airport's lively mix of commercial services, civil flying clubs, and expanding maintenance facilities made it a dynamic centre of aviation activity through the 1930s and beyond.

An Art Deco Landmark

Rand's terminal remains one of its most striking features. Conceived in the 1930s and designed to look like an aircraft head-on, it stands as a unique piece of aviation-inspired architecture. Today it enjoys national heritage status, underscoring Rand's role not only as an airport but also as a cultural and historical site.

Wartime Activity and Post-war Growth

World War II brought intense activity to Rand as the site became a training ground and centre for maintenance. The influx of trained personnel after the war spurred a boom in both private and commercial flying. Flying clubs

flourished, workshops multiplied, and the field bustled with aircraft ranging from biplanes to early monoplanes.

Outgrowing Rand

As aviation evolved and aircraft grew larger, Rand's runways became too short for international traffic. By the 1950s, airlines had moved to Palmietfontein and later Jan Smuts International. Rand reinvented itself as a centre for general aviation, training, and aero clubs — a role it continues to play with distinction.

Community, Heritage and the Lake

Just a short distance from the airfield, Victoria Lake (Germiston Lake) has long been part of the airport's community fabric. A site for rowing, sailing and leisure, it provided a recreational outlet for airmen and aviation workers from the 1920s onwards. The combination of water and sky gave the Germiston precinct its unique atmosphere, blending industry with leisure.

Living History

Today Rand Airport is a showcase of South African aviation history. The South African Airways Museum Society curates a remarkable collection of aircraft and artefacts, while regular fly-ins, airshows and educational events keep the legacy alive. Visitors can still hear the sound of radial engines, walk through historic hangars, and step inside vintage airliners.

Why Rand Still Matters

Rand is not simply a relic of the past. It continues to thrive as a general aviation hub, with training schools, maintenance facilities and light commercial operations. Its heritage buildings and museum practice make it a rare example of an airport that has preserved its identity while adapting to modern needs.

A Visit Worth Making

For pilots, spotters, historians or casual visitors, Rand Airport offers a layered experience. From the elegance of its Art Deco terminal to the activity around its hangars, and from lakeside strolls to aviation heritage on display, Rand remains a living link to South Africa's golden age of flight.

Rand Airport is a study in adaptation: from Johannesburg's first major air hub to a vibrant centre of heritage and flying. Beside the calm waters of Victoria Lake, it proves that airports can be more than points of departure — they can be custodians of memory, culture, and community.

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THE "IMPOSSIBLE TURN": HOW FIGHT–FLIGHT–FREEZE (FFF) MAKES A BAD BET WORSE

By Andre Roos

Last month, we discussed what happens when you are suddenly faced with an in-flight emergency and how it affects your body. Many pilots have years and years of experience with nothing going wrong at all. That is great, but if and God forbid when something happens, it is good to have the theoretical knowledge as well as an understanding of what occurs in your body and how your physiological design can actually cause you to make the wrong decisions. This month, we deal with one particular famous, arguably wrong decision.

Engine failure just after takeoff. Power-on climb. The nose is high, the runway is shrinking behind you, and a surge of adrenaline hits like a flash-bang. In that moment, the ancient survival trio—fight, flight, or freeze—can push even experienced pilots towards the very manoeuvre most likely to cause harm: the turnback to the departure runway. This follow-up article explores how the stress response drives pilots towards the "impossible turn," what the data actually reveals about outcomes, and how to train a plan that resists biology and enhances survival.

What do we mean by "impossible turn"

The term describes a rapid, low-altitude 180–210° turn (often more on the ground track) after a power loss on takeoff, with the aim of landing back on the same runway (usually downwind). Last month, we discussed why so many pilots decide to turn back. Geometry

works against you: by the time you've climbed to an altitude where a turnback might be flown, you've usually travelled a long way from the threshold; even a perfectly executed turn may still run you out of runway or leave you short. FAA guidance has evolved: the Aeroplane Flying Handbook (AFH) now addresses turnback safety explicitly and encourages pilots to decide on a personal decision height based on practice and to add a safety margin (about 25%)—but it still emphasises that straight-ahead (or small-deviation) forced landings are generally the lowest-risk option. If you consider what is happening in your mind during the FFF, then expecting to execute a perfect low altitude turn while severely impaired is actually a tall order. There are numerous videos online about the impossible turn, with one central oversight: none of the experiments are done in full adrenal dump FFF conditions. This, in fact, renders the exercises flawed and could potentially harm aviation safety. Why the adrenal dump points you the wrong way In the first seconds after engine failure, the sympathetic surge (adrenaline, noradrenaline, cortisol) causes tunnel vision, auditory exclusion, trembling, and impaired fine-motor control (see last month's article)—hardly ideal when you need to lower the nose immediately, pitch accurately for optimal glide, and maintain aircraft coordination. That's where fight–flight–freeze (FFF) distorts judgment:

- **Fight:** "I can beat this." Aggressive pull, sudden bank, fixation on the runway—classic signs leading to stall/spin.
- **Flight:** "Escape—return to the runway!" A hurried turnback began below a safe decision height, often resulting in an uncoordinated manoeuvre.
- **Freeze:** "Stare and delay." Seconds of indecision before pitching to glide or trimming, wasting valuable altitude.

FFF is human; the solution is pre-decision and practised procedures that replace instinct with a set script.:Mine is Speed, Field, Fault, Flaps Final (SFFFF), customised for each aircraft. In my Pioneer 300, it is Speed – 55kts, Field – 30 degrees left or right of spinner, Fault – only if time allows, Flaps – as required to reach the identified landing spot, then full flaps before touch down, Final – prepare for touchdown, all electrics off, fuel off and unlatch canopy, touch down as slow as safely possible.

What the data say (and what they don't)

My MSc thesis (Safety and Accident Investigation) involved the statistical analysis of 1000 recreational aviation accidents, evenly split between South Africa and the United Kingdom. I examined correlations, trends, differences, and other insights the data could reveal. The findings are for another time, but a few points are relevant to this article; one is that there is a clear correlation between controlled flight, uncontrolled flight, and survivability. With uncontrolled flight, therefore, Loss of Control in Flight (LOC-I) being responsible for the most fatalities.

Evidence is clearer than anecdote:

1. Flying straight ahead beats attempting a turnback in terms of survivability. In simulator studies, failures at 500 ft AGL always succeeded when flying straight ahead. Turnback attempts succeeded about 62% of the time, with most failures resulting in stalls or spins.
2. Training helps but doesn't change the overall odds. Instruction improved success rates to around 80% in some techniques, but flying straight ahead still gave the highest chance of survival.
3. Real-world crash data are biased — successes often aren't counted. Successful turnbacks don't show up in accident data, only failed ones do — which makes failure rates seem higher than they actually are, though the danger of failures is still clear.
4. Failed turnbacks are more deadly. Transport Canada found pilots are at least eight times more likely to be killed or seriously injured when attempting turnbacks than when landing straight ahead.
5. Stall and spin accidents are particularly deadly. These accidents have higher fatality rates (about 28%) than many other types, and failed turnbacks often end in stalls or spins.
6. FAA messaging has shifted — from a broad "don't" to a more nuanced "teach wisely." The FAA now wants CFIs to address this topic, while emphasising thorough pre-briefing explicitly. My opinion remains: Don't, as the odds are stacked against you with failure being much more common than success.

The aerodynamics and geometry working against you Even if flown perfectly, steep coordinated turns at low altitude leave very narrow margins. A 45° bank angle reduces altitude the least but leaves no error margin; a 30° bank is safer but consumes more height. The ground track is over 180°—often 210–270°—and headwinds make this worse. Many turns will be downwind, with higher groundspeed, increasing landing distances. This is why the AFH recommends practising at altitude, measuring altitude lost during idle-power descents of 180° turns, and adding at least 25% to determine a personal decision height.

How fight–flight–freeze specifically feeds turnback disaster

- Fight– over-bank and yank: Excessive back-pressure, skidding, and stall/spin.
- Flight – impulsive escape: Turning too low, chasing the runway visually, losing coordination.
- Freeze – late pitch-down: Delays cause loss of glide energy, making a return impossible.

A disciplined plan that resists biology

A brief pre-takeoff briefing can help counter instinctive reactions:

1. Decision heights: Below X AGL (your number plus 25%): do not turn back. Above Y AGL: consider, if conditions permit.
2. nto-wind turn and ground track: aim to minimise

track miles; accept taxiway or infield if safer.
3. Airspeed references: be aware of stall speeds in bank; maintain coordination; reduce AoA first.
4. Avoid troubleshooting below a safe altitude.
5. Focus on controllability, not perfect alignment.

Training that inoculates against FFF

- Conduct at-altitude turnback drills with a flight instructor to assess altitude loss.
- Follow a scripted EFATO briefing before every takeoff.
- Implement startle training by simulating EFATO at random intervals.
- Enhance AoA awareness through practice of coordinated turns and stall recovery.
- Understand your aircraft's "possible turn" profile before depending on it

So—what are the odds?

There is no universal number, but signals are consistent:

- Simulation: Straight ahead is almost always survivable, provided you identified suitable landing areas before takeoff.
- Turnbacks at 500 ft AGL: approximately 43–80% success depending on coaching and technique.
- Accident data: attempting a turnback increases fatal or serious injury rates by 8 times compared to landing straightforward.
- Stall/spin accidents are approximately 28% fatal. (My thesis findings are much higher than this data, with almost 80% fatal)

Translation: Unless trained, briefed, and at a safe altitude, do not turn back. Fly the most survivable crash scenario you can control.

A quick EFATO checklist

- Power loss – pitch immediately to Vg and trim.
- Below decision height – no turnback. Land ahead within ±30–60°.
- At/above decision height – consider into-wind turn if pre-briefed and on-speed.
- No troubleshooting until stable.
- Aviate first, talk later.

And remember: Speed, Field, Fault, Flaps Final (SFFFF)
Closing thought

The "impossible turn" isn't always physically impossible—but under stress, it's often operationally unfeasible and statistically unforgiving. Fight–flight–freeze urges you to pull, rush, or hesitate. Replace that with plan, practise, and proceed: a pre-briefed gate, a disciplined pitch to glide, and a commitment to arrive under control, even if it means an ugly landing somewhere survivable.

Safe Landings! SFFFF, SFFFF, SFFFF

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