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IN THE SPOTLIGHT: **SUSTAINABLE DEVELOPMENT**

Volume 29 – Issue 6, 2024

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The magazine of the Airports Council International World

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ACI WORLD
AIRPORTS COUNCIL INTERNATIONAL

Green thinking!

Editor, Joe Bates, considers how aviation's attitude towards protecting the environment and the sustainable development of airports has evolved over the years.

A lot of water has flowed under the bridge since I started work at Heathrow press agency Brenard's back in 1982. Times and attitudes have changed and people now think very differently about many things, arguably none more so than the environment.

As I believe I may have noted before, 40 years ago, aviation's impact on the environment and the sustainable development of airports wasn't really big on the global agenda.

Yes, there were one or too high-profile demonstrations against the opening of new airports and airport noise has always been an issue, but nitty gritty operational matters like CO2 emissions, deicing chemicals getting into local water systems, waste recycling (food and water) and energy consumption rarely cropped up in everyday conversations.

Back then, I suppose, most of us had never heard of greenhouse gases let alone knew what they were, or realised the damage being done to the planet through burning fossil fuels and other activities such as cutting down forests and farming.

I believe that the non-noise related 'environmental' penny first started to drop for aviation in the late 1980s/early 1990s, since when airports across the globe have increasingly become more focused on reducing their impact on the environment and sustainable development to effectively earn their licence to grow.

For me, initiatives such as the the building of a bridge for migrating moose at Oslo's Gardemoen Airport (OSL); Pittsburgh Airport (PIT) turning food waste into fertiliser; Baltimore/Washington Thurgood Marshall (BWI) and Dallas Fort Worth (DFW) converting cooking oil into renewable fuels; and Louisville Muhammad Ali International Airport's recent harnessing of geothermal energy to heat and cool its facilities are fantasic examples of airports going the extra mile on sustainability.

The 602 accredited airports in ACI's Airport Cabon Accreditation programme, including the 19 to achieve the top Level 5 status (Amsterdam Schiphol; Stockholm Arlanda; Bengaluru-Kempegowda; Beja; Christchurch; Delhi-Indira Gandhi; Eindhoven; Madeira; Gothenburg; Ivalo; Kuusamo; Kittilä; Malmö; Naples; Ponta Delgada; Ronneby; Rotterdam The Hague; Rovaniemi; and Toulon Hyères) have also helped raise the sustainability bar to new heights.

And there are, of course, thousands of other examples of pioneering airport sustainable projects worth highlighting, but I just don't have the space in this column. We do, however, do our best to look at quite a few of the latest developments in the 'sustainable development' themed section of this issue of *Airport World*.

ACI World's senior director for environmental protection and sustainability, Jennifer Desharnais, introduces the themed section by explaining how ACI World is guiding airports in their decarbonisation and noise management journeys.

The themed section also contains features about sustainable master plannning; Aeroporti di Roma's green financial strategy; Christchurch Airport's status as one of the greenest airports on the planet; and Portland International Airport's new earthquake resistant terminal.

We turn the spotlight on Cork Airport in our main airport feature. It may be small, but it is hugely ambitious, has a clear sustainable development plan and a growing route network.

This edition also includes a comprehensive review of the recent Airports Innovate conference in Rome; and features about megahubs; the security checkpoint of the future; enhancing operations through AI; and Copenhagen Airport's AIRHART Total Airport Management (TAM) solution.

Elsewhere in the issue we reflect on sustainability from a human perspective in our regular 'people matters' column; and report on the latest news from ACI World and the regions as well as the association's World Business Partners (WBP).

Another cracking issue I hope you'll agree. Happy holidays and I look forward to catching up with you all in 2025!

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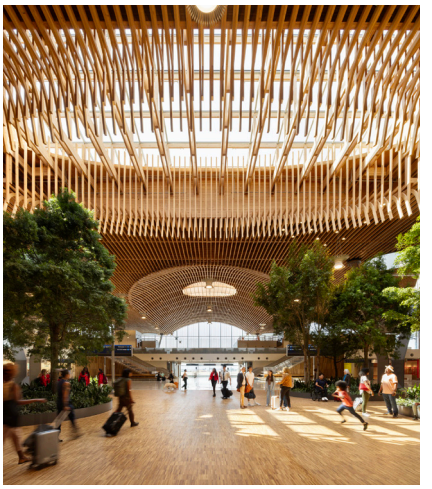

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World in **motion**

We report on the latest ACI news, views and developments from across the globe.

New ACI World ASQ Global Traveller Survey

ACI World has launched the Airport Service Quality (ASQ) 2024 Global Traveller Survey (GTS) report, revealing shifts in passenger expectations amidst a stabilising travel landscape and an increasing demand for traveller wellbeing and premium experiences.

For the fifth year, ACI World's ASQ expertise in customer experience market research has been leveraged for the 2024 GTS report to capture insights from over 4,125 travellers across 30 countries who have travelled by air at least once in the past 12 months.

The survey found that despite economic pressures, enthusiasm for travel remains steady. Travellers are now planning trips further in advance and show growing confidence in long-term travel arrangements, reflecting a post-COVID return of industry confidence.

With the increasing importance of consumer wellbeing, travellers are expecting an enjoyable experience that will keep their stress and anxiety levels at their lowest. Two-thirds of respondents report feeling positive about their next airport journey, yet a significant portion (one-third) highlight a clear demand for wellness-focused environments to enhance their overall travel experience.

In terms of the overall experience throughout the journey, the survey found that the most stressful touchpoints for travellers occur during the pre-boarding phase, with stress levels decreasing once these processes are completed.

Key consumer trends reshaping traveller preferences and setting new airport standards include the desire for seamless, automated journeys;

Information sharing; a growing demand for premium services and personalisation; and conscious consumerism, with travellers increasingly drawn to brands with ethical and eco-friendly practices, impacting their airport retail choices.

The GTS report provides key insights into the evolution of traveller behaviours and expectations and contributes to the advancement of airport experience excellence by exploring current and emerging travel trends. It also looks at the potential impact of external events on the air travel industry.

Completion of the 2024 GTS report was made possible through the support of IDEMIA as the Platinum Advisory Partner; and NACO and Plaza Premium Group as Premium Sponsors.

Scholarship for Women in Aviation

ACI World has created a new ACI Fund scholarship for Women in Aviation. ACI and Dr Luigi (Joe) Sulmona will serve as the award originators and financial co-contributors for this prestigious scholarship initiative.

The new scholarship aims to provide targeted support to women in aviation who hail from countries designated by the United Nations as Least Developed Countries (LDC), Small Island Developing States (SIDS), or Landlocked Developing Countries (LLDC) – all nations that are supported by the ACI Fund.

The one-time scholarship will recognise five outstanding women who have demonstrated exceptional achievements while participating in the ACI – ICAO Airport Management Professional Accreditation Program (AMPAP) Global Air Mobility System (GAMS) course, or, in their AMPAP application portfolio.

Each recipient will be awarded a grant of $10,000 to assist with their professional development in ACI aviation training courses.

The scholarship is part of the ACI Fund's broader mission to advance airport safety, security, management, economics, environmental sustainability, and service excellence through targeted assistance and human resources development at member airports in developing nations.

Through this scholarship, the ACI Fund seeks to open doors to career development for women in aviation while enhancing capacity building and professional standards within the global aviation community.

"This scholarship is a significant step forward in our commitment to supporting diversity and inclusion in aviation," said ACI World director general, Justin Erbacci.

ACI World announces Technology Innovation Award Winners

Dallas Love Field (DAL), Toronto Pearson (YYZ), Aeroporti di Roma's Emanuele Calà and Gerald Ford International Airport (GRR) were named as the winners of the prestigious ACI World/Amadeus Technology Innovation Awards during the recent Airports Innovate conference and exhibition in Rome, Italy.

The Awards celebrate the outstanding airport technology initiatives and leadership that are shaping the future of air transport.

For the fourth year, ACI World and Amadeus invited airports globally to submit innovative technology projects and examples of leadership that enhance the passenger journey, drive operational efficiency, or improve processes for employees, travellers, and other stakeholders.

Past winners have showcased themes such as big data, biometrics, artificial intelligence, and automation.

The Best Innovation in Airport Passenger Related Processes went to DAL for its 3D LED Holographic Signage Fan Displays.

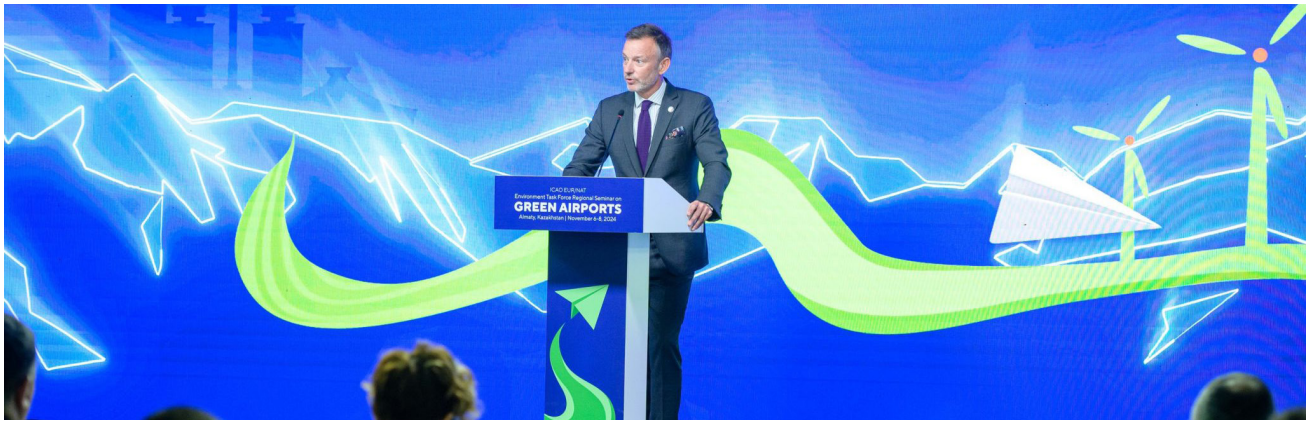
YYZ scooped the Best Innovation in Airport Operations and Installations Management Award for Optimizing Turnaround Operations using AI at Pearson.

ADR's senior vice president for transformation and technology, Calà, was awarded the Best Airport Innovation Leader (individual) accolade. And GRR won the Best Small and Emerging Airport Innovation Award for its Ford Launchpad for Innovative Technologies and Entrepreneurship (FLITE).

ACI World director general, Justin Erbacci, stated: "The groundbreaking solutions of the Technology Innovation Awards highlight the pivotal role technology plays in transforming our industry.

"This year's edition attracted an unprecedented number of candidates, showcasing the unwavering global commitment of airports to innovation and ACI World's relentless drive to empower it.

"As we embrace these advancements, technology becomes essential for boosting operational efficiency, creating seamless travel experiences and gaining a competitive edge."



ACI EUROPE/ICAO Green Airports Seminar

Over 130 delegates attended the Seminar on Green Airports organised by ACI EUROPE and ICAO's European and North Atlantic (ICAO EUR/NAT) Office in Almaty, Kazakhstan.

Hosted by the Ministry of Transport of the Republic of Kazakhstan with the support of Almaty International Airport JSC and Groupe ADP, the event was designed to support and advance climate action by airports in the Central Asian region.

Olivier Jankovec, director general of ACI EUROPE, said: "Environmental sustainability and, in particular climate action, has been at the forefront of our priorities for many years at ACI EUROPE, so we are delighted to engage with all relevant stakeholders together with ICAO in Central Asia.

"It is crucial that we all align and progress towards our shared objective of net zero emissions by 2050, as per the Long Term Aspirational Goal adopted by ICAO".

ACI-LAC recognises sustainability and customer experience

ACI Latin America & Caribbean (ACI-LAC) celebrated airport innovation in terms of decarbonisation and the use of technology to improve the passenger experience at its 2024 Annual Assembly, Conference and Exhibition in Guadalajara, Mexico.

Nathane Ana Rosa Negri, a civil engineer and airport planning specialist at Recife Airport, operated by Aena Brasil, won ACI-LAC's Young Professional Award for his submission on applying AI in airport processes to enhance efficiency and the customer experience.

While a host of airports and airport operators were recognised by ACI-LAC in its Green Airport Recognition for 2024. The programme aims to promote initiatives in airports in Latin America and the Caribbean in various areas of airport environmental management, such as waste management, energy efficiency, carbon emissions management, adaptation to climate change, among others.

In 2024, 21 circular economy projects that met the criteria established by ACI-LAC were recognised in Green Airport Recognition programme and will be included in a best practices document.

They include three projects that gained special recognition – OPAIN's 'circular connection'; ECOGAL's 'implementation of recycled asphalt pavement (RAP) in runway repair'; and Amazon Airports Concessionaire's 'circular economy of water resources at Manaus airport'.

Rafael Echevarne, director general of ACI-LAC, said: "Sustainability and passenger experience are essential pillars of the airport industry.

"ACI-LAC is committed, at a sectoral level, to the goal of achieving net zero carbon emissions by 2050, and the projects recognised by Green Airport Recognition are aligned with this objective.

"In relation to the passenger experience throughout their journey, we believe that the better it is, the more satisfied the passenger will be, the higher the non-aeronautical revenues will be and the stronger the image of the airports will be."

ACI Africa addresses the SAF challenge

ACI Africa's director of strategy and business development, Romesh Bhoyroo, represented the continent's airports when he took part in sustainability focused panel at the African Airlines Association's 56th Annual General Assembly & Summit in Cairo.

The panel discussed how the aviation industry can accelerate the journey to Sustainable Aviation Fuel (SAF) at the same time as meeting growing traffic demand across Africa and staying on track to meet the industry's Net Zero 2050 targets.

Fellow panelists included CANSO's director of African affairs, Thabani Myeza; Embraer's airline marketing manager for EMEA, Claire Bensahmoun; and Dr Ada Allogo Raissa from the African Union Commission.

Bhoyroo believes the important session once again highlighted aviation's collective commitment to a sustainable future in aviation.

Concern about rising airfares in Asia-Pacific & Middle East

The topic of rising airfares was one of the focal points of discussions among airport leaders during the Board Meeting of the ACI Asia-Pacific & Middle East in Phnom Penh, Cambodia.

An airfare study, undertaken by ACI APAC & MID, in partnership with Flare Aviation Consulting, examined airfare trends across approximately 60,000 routes in 19 countries from 2019 to 2024, providing a detailed view of post-pandemic air travel recovery in the region.

It discovered that while international air traffic is rebounding, with seat capacity expected to surpass pre-pandemic levels by the end of the year, airfares remain more than 10% higher in several markets.

The study showed a sharp rise in domestic airfares during the first half of 2024 compared to 2019 levels. Notable increases were seen in key domestic markets such as India (+43%), Vietnam (+63%), Malaysia (+36%), Thailand (+26%), and Australia (+21%), all of which heavily rely on domestic air travel.

Despite the anticipated recovery in international seat supply in these countries, airfares remain elevated compared to pre-pandemic levels. In India and Vietnam, international fares rose by 16%, Malaysia by 21%, Australia by 14%, and Thailand by 7%, with low-cost carriers (LCCs) contributing to the sharpest increases.

The study also notes that LCCs in the Asia-Pacific region have demonstrated greater resilience to the COVID-19 pandemic, increasing their market share and bargaining power, further influencing airfare trends.

Stefano Baronci, director general, ACI Asia-Pacific & Middle East, noted: "While passenger numbers in Asia-Pacific are returning to pre-pandemic levels this year, many travellers are paying significantly more, especially on domestic routes.

"This indicates that the demand for air travel is likely higher than in 2019. We must ensure that rising airfares do not become a barrier for potential customers. Passengers deserve transparency about these costs."

ACI-NA's Ted Bushelman Legacy Award for Creativity and Excellence

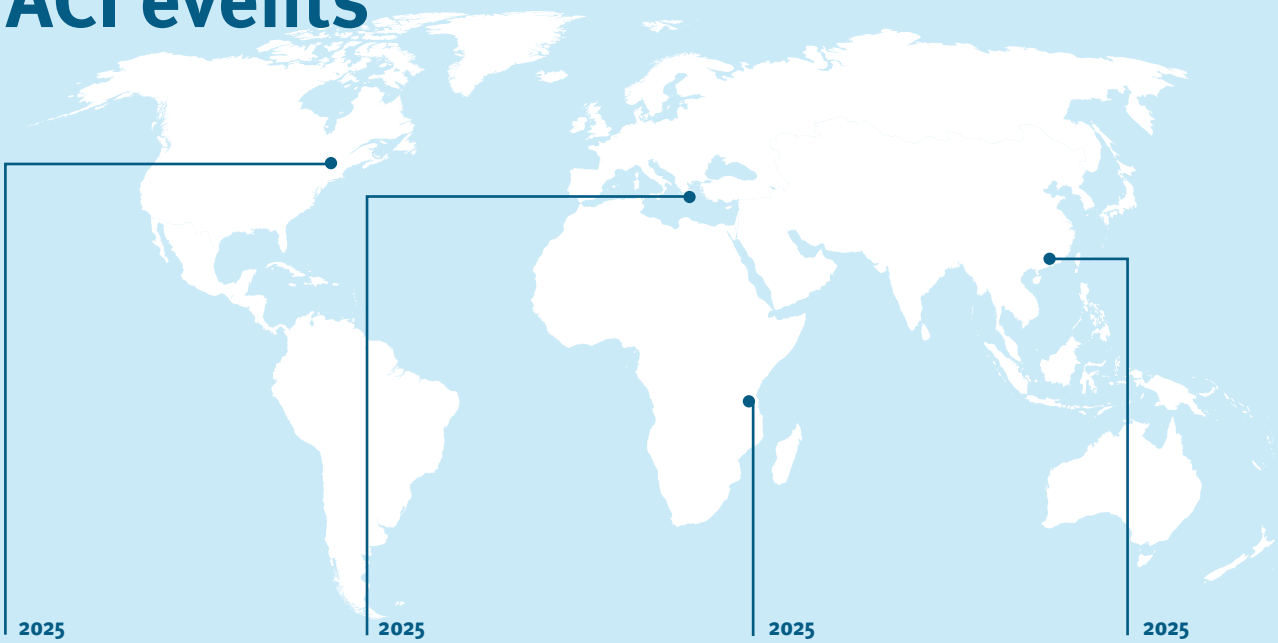
ACI-NA has named Justin Meyer, deputy director of aviation for marketing and air service development at Kansas City Aviation Department, as the 2024 recipient of the Ted Bushelman Legacy Award for Creativity and Excellence.

The Bushelman Award recognises the accomplishments and contributions of airport marketing, communications, and customer experience professionals "Justin Meyer's continuous commitment to advancing airport marketing, communications, and customer experience has significantly raised the bar and set a new standard for our industry," said ACI-NA president and CEO, Kevin Burke.

"From successfully leading the launch of a new terminal to sharing his counsel and expertise with countless peers, Justin embraces each opportunity with integrity, energy, confidence, reliability, and a collaborative spirit. We are honoured to recognise his achievements and look forward to witnessing his impact for years to come."

The award is named after its first recipient, Ted Bushelman, who served as senior director of communications at the Cincinnati-Northern Kentucky International Airport for 40 years.

ACI events



October 25-28

ACI-NA/ACI World Annual Assembly, Conference & Exhibition
Toronto, Canada

June 18-20

ACI EUROPE Annual Congress & General Assembly
Athens, Greece

April 24-30

ACI Africa Board Meeting, Regional Conference & Exhibition
Arusha, Tanzania

September 8-11

ACI World Airport Experience Summit
Guangzhou, China

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Airports Council International (ACI), the trade association of the world's airports, is a federated organisation comprising ACI World, ACI Africa, ACI Asia-Pacific & Middle East, ACI EUROPE, ACI Latin America-Caribbean and ACI North America. In representing the best interests of airports during key phases of policy development, ACI makes a significant contribution toward ensuring a global air transport system that is safe, secure, efficient, and environmentally sustainable. As of May 2024, ACI serves 814 members operating 2,110 airports in 169 countries.

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The future is green

Ireland's Cork Airport is an ambitious gateway with a clear sustainable development plan and growing route network, writes Joe Bates.

With growing passenger numbers and an impressive sustainable development strategy, it feels like Cork Airport (ORK) is finally beginning to emerge from the shadow of its bigger and better known cousin in Dublin having overtaken Shannon Airport as the second largest airport in Ireland many years ago.

Both Dublin and Cork are, of course, managed by Irish airport operator, daa, and although DUB is always likely to remain the gateway to the Republic of Ireland, ORK is going from strength to strength and for now, its future growth is unconstrained, unlike the country's capital city airport which has a 32mppa capacity cap imposed upon it.

While not quite at that level yet, Cork Airport is on an upward trajectory and is set to handle 3.1 million passengers this year to cement its status as the second busiest and fastest growing airport in the country.

The total, which represents a 10% upturn on the 2.8 million handled in 2023, follows a good summer and strong end to the year, with some new airlines and new routes announced to broaden the network.

Indeed, its impressive traffic growth, work starting on an upgrade to the airport terminal with the construction of a mezzanine floor over arrivals, and the unveiling of a host of sustainability initiatives that include plans to construct a new 1.74 million KWH solar farm, 2024 will probably go down as one of the best years in the history of Cork Airport.

Traffic and route development

The latest statistics from operator, daa, show that in recent months, sunshine destinations in Spain, Portugal, the Canary Islands, Italy and Greece proved particularly popular with passengers, and load factors to the UK market and major European hubs of Amsterdam Schiphol and Paris CDG remained high.

Records continue to tumble at Cork Airport, which enjoyed its busiest ever November when 201,000 passengers (+5%) passed through its facilities.

It followed a record break October when inbound numbers were boosted by the annual Guinness Cork Jazz Festival, while outbound traffic benefitted from an October Bank Holiday and the launch of the winter schedule, which has brought new services to Glasgow (Aer Lingus Regional) and new winter services to Fuerteventura and Rome Ciampino (both Ryanair) as well as increased frequency to Bristol (Aer Lingus Regional).

In addition, Ryanair has opted to continue its service to Brussels Charleroi throughout the winter.

When revealing the October traffic figures, the airport also announced that SunExpress will become the airport's ninth scheduled carrier when it starts operating from Cork in summer 2025, offering a direct service to Izmir in Turkey to complement the service since announced by TUI to Dalaman.

Talking about the new Izmir service, Cork Airport's managing director, Niall MacCarthy, notes: "It is really fantastic to see a new route, to a new country, operated by a new airline added to our schedule next year.

"Cork Airport is the fastest growing airport in Ireland with growth of over 10% this year, and increasing numbers of people across the South of Ireland are choosing Cork over competing airports for the quality, friendliness, and speed of using our airport."

As of today, Cork Airport is served by eight scheduled airlines that between them operate non-stop services to over 50 destinations across Europe.

"Growth at Cork Airport continues on a very healthy and a very strong trajectory," enthuses daa CEO, Kenny Jacobs.

"Cork is the fastest growing airport in the state with passenger numbers increasing in September, October and November compared to the same period last year.

"I know that the team in Cork is working incredibly hard to secure new and additional services and I expect that there will be further good news from Cork as the months progress.

"Cork Airport has the fullest of support from daa in continuing that robust growth into the future."

One of the ways the airport hopes to expand its route network is to encourage airlines to move seat capacity from Dublin to Cork by way of discounts on airport charges at Cork Airport.

"Good connectivity throughout the island is critical to attracting tourists and investment to Ireland, and there is a real danger of losing out to other countries while the Dublin cap remains in place," says Jacobs.

"Airlines that move routes and traffic from Dublin to Cork Airport will be offered lower charges at Cork Airport to encourage airlines to keep those routes in Ireland and to support jobs and connectivity."

What new routes would the airport like to see launched from Cork and, realistically, how quickly could this happen?

MacCarthy says: "The business development timeline from first meeting with an airline to route launch tends to be two to three years for short-haul and three to five years for long-haul once they believe in the business case.

"In terms of short-haul, our passengers are seeking Paris CDG as a year-round service rather than just a seasonal service, and we see demand for Lisbon, Madrid and more Polish and German connections.

"In addition, we see demand for connectivity to Istanbul as a long-haul hub. Undoubtedly, there is a strong demand in the Cork region for transatlantic services and, in particular, Cork–New York. We are talking to a number of carriers on all of the above and delivery is likely to be in the timeline outlined."

Sustainability

Cork Airport recently received a welcome funding boost from Ireland's Department of Transport in the shape of €2.284 million grant courtesy of the government's Regional State Airports Sustainability Programme.

This funding will go towards the construction of a new solar farm over the airport's long-term car park, which is expected to provide up to 25% of the airport's energy needs in the future, along with the electrification of existing ground power units.

What can MacCarthy tell us about the planned new solar farm and the airport's wider sustainabilty plans?

"The solar farm will be on an elevated steel frame creating a cover over vehicles within our Holiday Blue long-term car park," explains MacCarthy.

"We applied for planning this year and construction is expected to commence (subject to permission being granted) in September 2025, with a view to completion in December 2025.

"We have a 30-point sustainability strategy at Cork Airport to deliver actions and projects between now and 2030. We are very proud that in the last two years, Cork Airport has been named as the Best Performing Commercial Semi-State Body for energy reduction, as assessed by Sustainable Energy Authority of Ireland (SEAI).

"Even today [November 13], as a small example, we launched landside and airside plastic bottle and can recycling machines (return vending machines) which benefit Irish charities with every item recycled. We are the first transport hub in Ireland to introduce these new reverse vending machines."

Cork Airport certainly has an impressive track record of investing in new technology and sustainability initiatives designed to reduce its carbon footprint.

These include the construction of a €6 million electrical substation – designed to future proof its electrical infrastructure for decades to come; upgrading lighting on the terminal campus to more energy efficient LED lighting; and the reduction of energy usage within the terminal building through the deployment of advanced energy monitoring and SCADA systems.

This summer alone, the airport added three new electric vehicles to its maintenance and electrical fleet; a range of new, state-of-the-art electric vehicle charging points; new waste management technology, and landscaping improvements in green areas.

Introduced in conjunction with ePower, the airport's six new electric vehicle charging points are available for use by passengers, taxis servicing the airport, and airport vehicles where required.

"We have a very strong sustainability plan at Cork Airport," confirms MacCarthy. "Further electrification of our fleet, high-speed electric charging points for our passengers, smart, electronic, solar bins on our forecourt, and improving the biodiversity of our campus with an attractive planting programme are just the latest in a series of very substantial projects to be delivered.

"We have a detailed and ambitious sustainability plan, and I look forward to further substantial initiatives to be rolled out in the future."

The new electric vehicles join five new fully-electric, zero-emission vehicles added last year as part of the airport's commitment to reducing emissions by 51% by 2030, in line with targets set out by the Irish government.

Cork has achieved Level 2 'Reduction' status in ACI's Airport Carbon Accreditation programme.

Infrastructure development

Cork Airport's terminal opened in 2006 and remains an impressive looking building. Nevertheless, daa feels that after nearly 20 years in operation it is time to plan for the next 20 years and to map out a growth plan for the infrastructure to take it beyond five million passengers per annum.

The work includes extending the mezzanine over the check-in desks to expand the footprint of the security section and allow the installation of new C3 security scanners. The upgrade will also pave the way for the expansion of the airport's duty free area and the addition of new F&B facilities.

The capital development plan also includes the provision of the solar farm previously mentioned, upgrade of the staff and goods screening area, improvement of aviation fuel farm facilities, development of new forward gates, improved public transport connections, and better facilities for car users including even more high-speed electric car charging points.

The electrification of the airside is also being progressed in 2025 with the purchase of new mobile electrical ground power units.

The Irish government is providing €6 million in funding to support the security screening project.

In the medium to long-term there are plans to add a complete new pier and gate facilities to the southern end of the existing terminal.

This will provide significant additional airside terminal capacity and will be served by new, nose-in aircraft parking stands which will be located directly where the old terminal is now and will require its demolition to upgrade and expand the apron.

In effect, the airport is planning now for a gateway capable of accommodating more than five million passengers per annum within the next decade.

Economic impact

Analysis by InterVISTAS Consulting shows that Cork Airport plays a critical role in supporting jobs in tourism and trade across the south of Ireland as a key economic enabler for industry and commerce.

Indeed, the report reveals that the gateway contributed just over €1 billion to the Irish economy and supported more than 12,650 job in 2023, including 2,330 jobs directly across the airport campus.

Jacobs concluded: "Cork is a really great airport and daa is committed to supporting the excellent management team in place to grow the airport to five million passengers a year within the next decade, while maintaining the warm welcome and customer service our passengers know and love Cork for." AW

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The **net zero** journey

Senior director for environmental protection and sustainability, Jennifer Desharnais, explains how ACI World is guiding airports in their decarbonisation and noise management journeys.

Airports around the world continuously aim to balance environmental responsibility and quality of life for those living near airports, while delivering socio-economic benefits to the communities they serve.

As they progress towards achieving their Net Zero Carbon emissions targets by 2050, or before, they must also sustain their efforts in reducing aircraft noise pollution.

Based on ACI's Long-Term Carbon Goal Study released in 2021 and the ICAO Long-Term Global Aspirational Goal (LTAG) Report in 2022, the aviation industry has set ambitious decarbonisation targets that are taking centre stage.

Strategies for achieving Net Zero Carbon emissions should include the involvement of leadership and decision-makers, collective effort and a strong partnership amongst various stakeholders from diverse sectors, accessibility to funding and investment, development of new technologies or improvements to existing ones, operational innovation, and capacity building.

The existing complexity of airport sustainability extends beyond reducing its own emissions, over which it has direct control (Scope 1) and indirect control (Scope 2). It also entails encouraging the airport's stakeholders to reduce their emissions (Scope 3).

To reach net zero, remaining residual can be tackled by investing in credible offset removal programmes, and through permanent Greenhouse Gas Removals (GGR) technologies.

ACI's Airport Carbon Accreditation programme supports airports in managing and reducing their carbon emissions through seven levels of certification.

The programme provides a unique common framework and tool for active carbon management at airports with measurable results. It covers the operational activities that contribute most to carbon emissions.

It is site-specific and can be used at any airport as part of its daily environmental management activity and long-term strategy as it helps to guide and support airports through a process of continual improvement and partnership with stakeholders.

When it comes to aircraft noise management, airports have long been working to address the impact of aircraft noise on human health, such as annoyance and sleep disturbance.

However, with increased pressure from governments and communities, and in order to build strong local stakeholder relationships, maintain trust, and embed the airport in the local community, it is crucial to remain focused on improving the approach to noise management.

Using the ICAO Balanced Approach to Aircraft Noise Management as a foundation, key elements to consider include the initial noise assessment and the establishment of a noise abatement objective, should it be determined that a noise problem exists.

In 2024, ACI World published two guidance publications which help airports navigate through the complexities of decarbonisation and aircraft noise management.

They provide airport operators and industry professionals with the knowledge and tools needed to tackle the ever-evolving challenges of reducing carbon emissions and managing noise in a way that benefits both the environment and surrounding communities.

The Guidance on Airport Decarbonization publication is designed to assist airports in creating a comprehensive decarbonisation roadmap for their operations. It also supports airports in preparing to meet the decarbonization goals, ensuring alignment with the broader objectives of the industry.

The *Guidance Application of the ICAO Balanced Approach to Aircraft Noise Management* provides a thorough overview of the ICAO Balanced Approach framework and delivers practical guidance on its effective implementation, enabling airports to create robust and efficient noise management strategies, and consequently improve the quality of life of its community.

Both publications are available on the ACI World online store.

Additionally, there are several examples of technological advancement and innovation that could help the industry achieve both decarbonisation and noise reduction targets:

- The introduction of the next generation of aircraft design and advanced engine technologies, including electric, hydrogen and hybrid aircraft.
- Replacing fossil-fuelled ground vehicles and equipment with electric alternatives, or the implementation of sustainable taxiing.
- Improvement of Air Traffic Management (ATM), such as Performance-Based Navigation (PBN) or Continuous Climb/Descent Operations (CCO/CDO).
- The use of data and digital solutions to track, analyse, and optimise operational parameters, or simulate airport operations to predict and implement strategies for noise reduction and decarbonization effectively.

By aligning all these strategies, the aviation ecosystem can achieve more sustainable operations that address both carbon emissions and noise pollution, ultimately contributing to a cleaner and harmonious aviation sector. AW

Building a green future

Rome's airport operator is on a journey towards environmental excellence through innovative financial strategies, writes Aeroporti di Roma CEO, Marco Troncone.

Decarbonisation remains at the forefront of the air transport sector. Indeed, it is pivotal for both its development and survival.

Sustainable finance plays a key role in aligning the industry's strategies with environmental and social responsibilities.

Aeroporti di Roma (ADR) is championing sustainability initiatives, setting ambitious goals for higher levels of environmental responsibility. The company is leveraging cutting-edge financial instruments like sustainability-linked bonds to drive its decarbonisation targets and advance innovative solutions for low-emission aviation.

Sustainable finance at ADR

ADR's commitment to environmental and social responsibility is reflected in its innovative financial approaches, including the issuance of sustainability-linked bonds, which connect the cost of debt to its environmental performance, incentivising the company to achieve its decarbonisation goals.

ADR was the first airport operator in the world to issue a sustainability-linked bond in 2021. Unlike a green bond, which is used to finance specific sustainable projects (and which ADR used in 2020), the interest rates paid to investors are linked to the company's sustainability goals.

For example, in July 2023, ADR issued another 10-year bond (€400 million, 4.875% coupon) tied to its targets for cutting Scope 1 and 2 emissions to net-zero by 2030 through initiatives such as new photovoltaic plants, electrifying its vehicle fleet, and using biofuels.

For Scope 3, the goal is a 30% reduction by 2030 (from 2019) in CO_2 emissions per passenger transiting through the airport.

Sustainability-linked financing instruments of different nature represented 65% of ADR's financing structure in April 2024, spanning from a green bond, two sustainability-linked bonds and a sustainability-linked revolving credit line.

All financing instruments initiated since November 2020 have been structured in 'green' or 'sustainability-linked' formats. The goal is to continue on this path.

Furthermore, Aeroporti di Roma has established itself as a leader in sustainable finance and plays a pivotal role in the World Economic Forum's 'Airports of Tomorrow' initiative.

As a Corporate Champion in the 'Airports of Tomorrow' initiative, ADR is leading the finance pillar to advance low-carbon aviation. This initiative, co-led by the World Economic Forum and Airports Council International (ACI) aims to address the energy, infrastructure, and financing needs of the aviation industry as it transitions to net-zero carbon emissions by 2050.

ADR and the EU Taxonomy

ADR's sustainability performance is also reflected in its alignment with the European Taxonomy.

ADR welcomes introduction of the EU Taxonomy, a science-based classification system to identify economic activities on the basis of their contribution to environmental sustainability objectives.

By channelling private investment into the transition to a climate-neutral, climate-resilient, resource-efficient and fair economy, this

Passenger traffic at Rome's airports continues to rise

Around 49 million passengers are expected to pass through Rome's Fiumicino (FCO) and Ciampino (CIA) airports in 2024.

Operator, Aeroporti di Roma (ADR), notes that FCO "spearheaded the positive performance of the Italian aviation system" in 2024 and help confirm Italy's status as the fourth largest European market in terms of capacity offered (almost 150 million seats), following the UK, Spain and Germany, and ahead of France, Greece and Portugal.

During Summer 2024, Fiumicino recorded growth of nearly 20% compared to Summer 2023, a headline grabbing three times the average 7% increase achieved by Europe's top 20 airports.

Among major European airports, Rome Fiumicino reported the highest growth in seat capacity, achieving "record" levels of expansion in Europe (+20% vs '23). In July, for the first time in FCO's history, the airport surpassed five million monthly passengers, a figure further exceeded in August with 5.11 million.

And on Monday, August 19, a new daily passenger record was set, with 180,000 passengers passing through the airport in a single day.

The upturn in traffic has been helped by a significant improvement in FCO's global air connectivity, particularly with North America, which is now served by 16 destinations, including New York, with up to 12 daily departures in July.

In addition, Rome Fiumicino entered Cirium's ranking of the Top 10 best-connected airports worldwide, offering over 230 direct destinations.

These remarkable achievements point to a projected year-end growth of over +20% compared to 2023 and suggest further expansion in 2025.

International traffic is expected to drive next year's development, positioning Rome once again as a key player thanks to a major global event from both religious and touristic perspectives, such as 2025 being announced as a Jubilee year for the Catholic Church.

system sits at the core of the EU's world-leading sustainable finance agenda, with also the ambition of avoiding greenwashing practices.

ADR has always actively participated in institutional dialogue with the EU Commission and its technical bodies to promote and develop the EU Taxonomy, and its applicability to transport infrastructure, in order to facilitate its enabling role to the Net Zero 2050 transition.

ADR also collaborated with ACI EUROPE in shaping guidelines for the airport sector to apply the EU Taxonomy.

In 2023, with 75% of its revenues, 81% of its investments, and 65% of its operating expenses aligned with the EU Taxonomy, ADR stood out among its peers for the adherence to this scheme.

The EU Taxonomy serves as a beacon for ADR's sustainability strategy, guiding its references and best practices, and influencing its role in financial markets.

Such KPIs were possible for a variety of reasons, all linked to ADR's sustainability efforts. Some examples are:

- The energy efficiency of our buildings and terminal. Apart from being certified to the highest standards in sustainability, such as LEED and BREEAM certifications, the terminal of Rome Fiumicino is among the 15% of most energy efficient buildings in Italy.
- The provision of electrical power and preconditioned air to airplanes. Thanks to this equipment, which are present in almost all parking stands in Rome Fiumicino, airplanes can avoid using their APUs, avoiding harmful emissions.
- The installation of electrical charging points for vehicles. In fact, ADR has a plan to install more than 5,000 recharging points throughout Fiumicino and Ciampino airports.

EU Taxonomy is not only a reporting tool, but it's also a way to drive change inside an organisation. Taxonomy has been, and will be, more and more helpful in driving sustainable change in ADR, especially regarding actions to foster climate change mitigation and adaptation.

In this regard, to tackle climate change risks and opportunities, Aeroporti di Roma has developed a sophisticated 'Climate Change Risk Analysis' aligned with international standards and methodologies, such as ICAO guidelines and ISO 14091.

Aeroporti di Roma integrates this comprehensive analysis into its Enterprise Risk Model (ERM), enabling it to manage climate risks with a long-term perspective.

This approach includes advanced climate modelling, resilience assessment, and strategic adaptation planning, aligned with the European Taxonomy for Sustainable Investments.

Conclusions

The pursuit of sustainable finance in the aviation sector is crucial for building a green future.

ADR, through its pioneering initiatives and alignment with international sustainability standards, demonstrates how airports can lead in environmental and social responsibility.

Our innovative use of sustainability-linked bonds and alignment with the European Taxonomy showcase ADR's commitment to decarbonisation and sustainable development, setting a benchmark for the industry.

AW

Going green

Airports across the globe continue to deliver on sustainability, achieving new milestones and pioneering new green initiatives, writes Joe Bates.

Dublin at the double – solar panels and thermal energy

Dublin Airport has revealed that it is exploring the potential of geothermal energy as a renewable, low-carbon energy source to heat and cool its facilities.

Geothermal energy comes from heat in the Earth's core. While temperatures fluctuate above ground, a few feet below the Earth's surface the ground remains at a relatively constant temperature.

Dublin Airport could potentially benefit from geothermal energy by using ground source heat pumps (GSHP) on-site at the Dublin Airport campus.

They use underground pipes to warm water that can then be used to help heat buildings and are a renewable, low-carbon energy source.

Other European airports using this type of technology include Copenhagen, Paris-Orly, Amsterdam Schiphol, Geneva, and Louisville and Vancouver International airports in North America.

High-level feasibility works to determine the viability of geothermal energy to meet Dublin Airport's heating and cooling demands efficiently took place in 2022. These confirmed that the Dublin Airport campus is an effective geothermal resource suitable for a GSHP system.

Airport operator, daa, has now issued a selective tender for a comprehensive geothermal feasibility study and initial design for Dublin Airport.

The plan will explore the suitability of geothermal energy as a renewable alternative to heating and cooling many of its terminals and campus buildings by utilising a heating and cooling load between 7MW and 10MW through geothermal energy.

Andrea Carroll, daa's group head of sustainability, commented: "We are excited to explore the potential of geothermal energy – known as the 'heat beneath our feet' – as a sustainable solution for heating and cooling at Dublin Airport.

"This initiative, along with our new solar farm which became operational in October, underscores our commitment to reducing our carbon footprint and advancing towards our goal of net zero carbon emissions by 2050.

"By integrating innovative renewable energy technologies, we are not only enhancing the sustainability of our operations but also setting a benchmark for other airports globally."

The airport has been supported in its explorations by Geological Survey Ireland (GSI), a division of the Department of Climate Change, which promotes the uptake of geothermal as a renewable heating resource to reduce Ireland's CO_2 emissions.

Located within the grounds of Dublin Airport, the gateway's newly commissioned 9MW solar farm will generate approximately 8,685,776 kilowatt-hours (kWh) of clean energy annually, equivalent to powering 1,600 homes for a year.

It will not only enhance Dublin Airport's energy independence but also significantly reduce its carbon footprint, avoiding approximately 2,583 tonnes of CO_2 emissions each year.

The solar installation – installed by Enerpower and powered by Greenvolt – comprises 15,000 high efficiency panels, which will provide 13% of the airport's total electricity requirements, reducing its reliance on grid electricity and supporting Ireland's ambitious renewable energy targets.

By 2030, daa aims to reduce Dublin Airport's direct (Scope 1 and 2) emissions by 51%, with this solar project playing a key role in achieving that target.

Speaking about daa's sustainability goals earlier this year, chief commercial and development officer, Vincent Harrison, said: "Ireland is a small, open island economy and aviation has been an essential engine of our economic growth and prosperity for more than 80 years.

"The challenge now is to transform into a zero-carbon industry as quickly as possible, while continuing to meet our mandate to support Ireland's connectivity needs.

"While the aviation industry doesn't have all the answers yet, daa is committed to halving the emissions under its direct control. We have allocated €400 million to innovative sustainability initiatives and look forward to announcing more ambitious projects."

DXB continues to raise the sustainability bar

Dubai International Airport (DXB) has achieved Level 4 'Transformation' status in ACI's Airport Carbon Accreditation programme.

The UAE hub notes that the achievement recognises its efforts to cut carbon emissions and places it among the top 5% of the world's participating in the programme.

'Transformation' certification is awarded to airports that realise absolute emissions reductions and drive systemic change with its stakeholders.

The airport has no doubt that its commitment to minimising its environmental impact and enhancing operational efficiency – with a comprehensive focus on decarbonisation, resource conservation, and the adoption of cutting-edge technologies – will play a key role in supporting the UAE's Net Zero 2050 strategy.

"Achieving Level 4 'Transformation' accreditation underscores our firm commitment to embedding sustainability at the core of everything we do at Dubai Airports," enthuses Dubai Airports CEO, Paul Griffiths.

"This recognition not only highlights our progress in reducing our own carbon footprint but also reflects the strength of our partnerships in driving broader, systemic change across the aviation ecosystem.

"For us, sustainability is not a checkbox – it's a long-term strategy that involves collaboration, innovation, and constant improvement.

"The responsibility we own goes beyond our operation; it's about leading by example and embracing a culture where every stakeholder plays a part in creating a more sustainable future. Together, we are setting a new standard for what is possible in airport operations, as we continue to support Dubai's and the UAE's leadership in the global effort towards Net Zero by 2050."

Stefano Baronci, director general of ACI Asia-Pacific & Middle East, said: "We congratulate Dubai Airports for its significant strides in reducing carbon emissions, setting a benchmark for airports across the region.

"By positioning itself as one of the leaders in efficient carbon management, Dubai Airports demonstrates a strong commitment to building a more sustainable future. Dubai Airports' approach aligns with our industry's collective vision of achieving net zero emissions by 2050."

DXB has made significant progress through key initiatives and partnerships aimed at advancing sustainable aviation.

For example, a recent collaboration with dnata and Emirates National Oil Company (ENOC) is designed to transition dnata's non-electric airside fleet to a biodiesel blend, reducing carbon emissions by over 3,500 tonnes annually.

Other initiatives include a partnership with Etihad Energy Services to enhance energy efficiency through a building and lighting retrofit and solar integration, and a collaboration with BEEAH Group, reducing landfill waste by 60% through an innovative food waste treatment plan.

On the airfield, DXB's adoption of the 'Follow the Greens' system has also optimised aircraft taxiing, cutting fuel consumption and emissions.

While other successful initiatives include active engagement with 'Airports of Tomorrow', a collaborative venture by the World Economic Forum (WEF) and ACI to steer the aviation industry toward net-zero carbon emissions by 2050.

And the newly launched oneDXB Sustainability Alliance, a network of airport partners, is further driving sustainability by exploring over 180 additional potential decarbonisation projects.

Free public EV charging at Belgrade Nikola Tesla Airport

Globos Osiguranje has sponsored five EV ARC solar-powered EV charging stations at Belgrade Nikola Tesla Airport, Serbia's busiest international travel hub, and will provide free public electric vehicle (EV) charging.

Since the systems operate off-grid, they support the airport's sustainability efforts while also setting a new standard for energy-efficient solutions at major travel hubs.

Beam Global is behind the initiative, and will generate income through a long-term annuity stream with recurring payments.

"We are proud to make Belgrade Airport the first airport in the world to offer free, standalone, 100% solar-powered EV charging," said airport CEO, Chivoine Rem.

"Our commitment to minimising our carbon footprint aligns with VINCI Airports' global policy, which aims for zero CO_2 emissions by 2050.

"To optimise energy consumption and to reduce CO2 emissions, we employ a range of strategies – we are already producing the energy from our solar power plant for couple of years and besides previously installed chargers at Tesla parking, we offer our customers solar-powered EV chargers across the airport site.

"These initiatives make Belgrade Airport unique in Serbia. Filling their EVs with renewable energy while they are here is an excellent example of the benefits that we are working to create. The partnership with Beam Global means that we are constantly able to offer more comfort to our travellers."

Sustainable asphalt based on cashew nuts tested at Frankfurt

Fraport AG is exploring new, innovative approaches for the use of construction materials.

Together with the startup B2Square – Bitumen Beyond Oil – the airport operator is using sustainable asphalt concrete to build and test a 200-metre-long section of road located on the airport apron.

This is the first time that organic cashew-based bitumen has been used at an airport anywhere in the world.

Bitumen is indispensable for road construction. It is normally obtained as a byproduct when distilling crude oil and then mixed with mineral aggregate to make asphalt concrete (also known as blacktop) for building roads.

In this case, however, B2Square is blending naturally occurring hydrocarbon resin with an organic extract obtained by pressing cashew shells. The resulting material is then mixed with aggregate to make sustainable asphalt.

According to the airport, this biogenic raw material is much more durable and climate-friendly than conventional asphalt concrete.

Like all plants, cashew trees extract carbon dioxide from the atmosphere. The CO2 stored in cashew shells is neutralsed in a special process and then permanently bound in road pavement. The low-temperature method used to lay it additionally improves the climate balance by consuming less energy.

"We regard this innovative bioasphalt based on organic bitumen as a fascinating possibility for reducing Frankfurt Airport's carbon footprint," says Andreas Eibensteiner of Fraport AG's Environmental Management Department.

"To effectively combat climate change, you have to think out of the box and try out ingenious approaches like this one."

UK Aviation Minister visits BHX's new solar farm

The UK's Aviation Minister, Mike Kane, has visited Birmingham Airport's new 6.8-megawatt solar farm, made up of 12,000 panels, responsible for providing at least 20% of the airport's electrical power requirement.

Birmingham Airport (BHX) has committed to beat the government's deadline and become net zero by 2033. An ambitious target that the multi-million-pound sustainable investment will contribute to as it is less reliant on the Grid.

Evo Energy worked closely with the airport on the design and build plans with works commencing on the solar panel site last year at a cost of £9.7 million.

With full plant usage today, these panels, at peak, will supply 6.8MW of power back to the airport, and it is anticipated it will save 1,285 tonnes of CO2 per year.

Airport CEO, Nick Barton, noted: "Our solar panels will ensure that at certain times of the year, during sunnier and warmer days, we will have no reliance on incoming power sources, key to our net zero target."

Evo Energy worked closely with the airport on the design and build plans with works commencing on the solar panel site last year at a cost of £9.7 million.

Aviation, Maritime and Security Minister, Kane, said: "It's fantastic to see Birmingham Airport embrace our 2033 net zero mission.

"Their new solar farm, built with millions of pounds of investment, will produce almost a quarter of the electricity the airport needs over the coming years.

"It's this sort of innovation and drive that will help the UK become a Clean Energy Superpower, and we will continue to support industry to achieve that goal."

BHX is gearing up for sustainable growth and over the next decade and will invest over £300 million in terminal and airfield infrastructure, alongside initiatives that will deliver sustainable growth.

Bahrain becomes first airport to receive IATA environmental assessment certification

Bahrain International Airport has become the first airport in the world to attain IATA Environmental Assessment (IEnvA) certification.

Operator, Bahrain Airport Company (BAC), believes that the achievement highlights the airport's innovative approach to environmental sustainability and responsible operations.

BAC CEO, Mohamed Al Binfalah, stated: "Achieving the world's first IEnvA airport certification is a remarkable milestone, reflecting BAC's strategic dedication to minimising the airport environmental footprint. "This achievement is a direct result of the hard work and dedication of the entire airport community, who have embraced our strategic objective. By minimising our environmental impact, we not only enhance our own performance but also contribute to a more sustainable future for the entire aviation industry."

Kamil Alawadhi, IATA's regional vice president for Africa and the Middle East, noted: "This is a remarkable achievement that reflects their unwavering dedication to environmental sustainability and responsible business practices through robust environmental management plans with continual performance improvements.

"I commend the efforts of everyone involved and wish Bahrain Airport continued success in improving their sustainability performance."

Established by IATA over a decade ago, the IEnvA programme has been instrumental in enhancing the environmental performance of airlines and was expanded to encompass airports and ground handling companies in July 2022.

BAC enrolled in the programme in February 2023. The rigorous certification process involved five stages, including comprehensive gap analyses and on-site assessments conducted by IATA experts.

San Diego releases new ESG report

The San Diego County Regional Airport Authority has released its 2023 Environmental, Social & Governance (ESG) Report, which can be viewed and downloaded at san.org/ESG.

The report serves as a barometer for San Diego Inteernational Airport's relationship with the greater San Diego community through its environmental stewardship, social responsibility and responsible governance.

Since 2011, the airport authority has published an annual sustainability report, and for the 2022 report, began incorporating Diversity, Equity and Inclusion goals.

With the 2023 ESG report, the airport notes that it is embracing efforts by the airport industry to coalesce around a common reporting framework.

"As we transition to ESG reporting, we are excited to shine a light on the exciting projects and initiatives that drive San Diego International Airport forward," said Kimberly Becker, president and CEO of San Diego County Regional airport authority.

"We're focused on creating a sustainable future by reducing our carbon footprint and being a responsive community partner, while continuing work on the New Terminal 1, which is scheduled to open next fall."

The airport authority will provide bi-annual ESG reports moving forward, while continuing to report on ESG data and trends annually.

Airports of Thailand unveils green management plan

Thai airport operator, Airports of Thailand (AOT), has ambitions to transform Chiang Mai, Mae Fah Luang, Phuket, Hat Yai and Bangkok's Suvarnabhumi and Don Mueang airports into 'green' gateways.

The six international airports currently account for 95% of all air traffic across Thailand.

According to AOT's chief advisor for engineering and construction, Jakkraphob Jarassri, the new green strategy focuses on four main pillars – connectivity, system integration, sustainability and airport size.

From the sustainability perspective, the focus is on fostering an eco-friendly airport environment in co-operation with local communities, aimed at reducing the long-term environmental impact of airport activities.

Jarassri, speaking at a recent sustainability conference in Bangkok, said: "As for airport size, we realised that large airports are not always necessary, and will try to keep these suitable for users' needs while still maintaining efficiency and convenience."

In support of Thailand's bid to reduce carbon emissions from the transport sector, AOT routinely monitors energy consumption at its airports.

"We try to reduce energy usage to minimise greenhouse gas emissions as much as possible," added Jarassri. "AOT also plans to purchase carbon credits in the future to offset the portion of emissions that we cannot reduce."

Munich Airport switching to electric ground power units.
Munich Airport has introduced the first of 20 electric ground power units (eGPUs) set to be in place by the end of the year as part of its ambitious Net Zero 2035 sustainability programe.

The switch to eGPUs on the apron by AeroGround, a wholly owned subsidiary of Munich Airport, means that two thirds of the ground power units the gateway are now powered by electricity, which is expected to save around 8,000 tons of CO_2 emissions annually. The cost of the environmentally friendly power generators was part funded by a €5.6 million grant from the Federal Ministry for Digital and Transport.

LEED gold certification for Hamad's ORCHARD
Hamad International Airport's Central Concourse, which includes the indoor tropical garden, ORCHARD, has received Leadership in Energy and Environmental Design (LEED) Gold Certification.

The certification showcases the airport's commitment to sustainability and environmentally responsible construction practices.

LEED certification is a globally recognised symbol of sustainability achievement and one of the most widely used green building rating systems.

Certifications are awarded to buildings that meet rigorous environmental standards across various parameters, including energy efficiency, water usage, air quality, and material selection.

Attaining the LEED Gold certification symbolises Hamad International Airport's dedication to integrating the highest environmental standards into its operations, ensuring long-term efficiency, cost savings, and a positive environmental impact.

The Central Concourse, where ORCHARD is located, was part of Phase A of Hamad International Airport's expansion plan and was designed to utilise 30% less energy and 55% less overall water usage.

Through its commitment to advancing sustainable best practices the central concourse at Hamad International Airport joins a relatively limited number of airport terminals worldwide which have achieved similar certifications from LEED.

MATAR, the Qatar Company responsible for operating and managing the gateway, believes that LEED Certificate stands as a testament to Hamad International Airport's ongoing commitment to reducing emissions and addressing climate change through continuous enhancements to the facility's environmental performance.

In its sustained effort to promote sustainability, the airport is spearheading innovative initiatives aimed at minimising waste and maximising resource efficiency, further highlighting its dedication to environmental responsibility.

London Luton invests in new sustainable bus fleet
London Luton Airport (LLA) notes that it has taken another key step in its journey to achieving net zero emissions by 2040 following its investment in a fleet of sustainable car park transfer buses and operational vehicles used across the airport.

The new buses are powered by ISCC (International Sustainability Carbon Certification) certified hydrotreated vegetable oil (HVO), a lower-carbon alternative to diesel that can save up to 90% of carbon emissions across the fuel's lifecycle.

The investment in the buses, alongside the transition of all airside operations vehicles to HVO and an increase in the number of electric vehicles (EV), means that almost two thirds of LLA's operational fleet will be electric or running on low-carbon fuel by the end of 2024.

The UK gateway's head of sustainability, David Vazquez, said: "As part of our commitment to net zero, we have set targets to implement a 100% low-carbon fleet by 2030. From the end of this year, this latest transition, will reduce our airport emissions by nearly 15%, playing an important role in our plans for responsible growth.

"All aspects of our sustainability strategy are underpinned by collaboration and I'm grateful to teams across the business, who work so hard to embed better environmental and social practices into their daily roles and responsibilities."

LLA's trajectory to net zero focuses on six key areas that will see the airport working with partners and the wider industry to implement various decarbonisation initiatives.

These include developing on-site renewables, phasing out natural gas, improving energy efficiency, and transitioning its operational fleet to low carbon alternatives.

Green planning

Sustainable master planning can ensure that airports balance expansion plans whilst accelerating their sustainability objectives, writes Alton Aviation Consultancy's Mabel Kwan.

Airports are vital gateways to nations, linking cities, driving trade and serving as cultural hubs for millions of travellers.

However, whilst aviation has brought about economic and social benefits, it has also increased the impact on the environment, with a 50% rise in CO_2 emissions since 2000.

Alton projects the global aircraft fleet to grow from 31,200 aircraft to over 41,000 aircraft by 2035. That equates to an increase of 2.8% per year, intensifying the environmental and social challenges on airport operations.

As key players in the aviation ecosystem, airports are uniquely positioned to lead sustainability efforts.

Situated at the intersection of airlines, governments, and communities, airports can drive collaborative initiatives to address these challenges.

Sustainable master planning has emerged as a crucial tool, enabling airports to balance growth with sustainability while meeting stakeholder expectations and building resilience for the future.

The necessity of sustainable master planning

The aviation industry faces growing pressure to decarbonise, in alignment with global sustainability goals. Both ACI and IATA are committed to achieving net-zero carbon emissions by 2050, but the path requires airports to be proactive and establish a common vision to align initiatives.

For example, Changi Airport in Singapore implemented an airport-wide energy management system aiming to reduce Scope 1 and 2 emissions by 20% by 2030.

By integrating sustainability into master planning, airports can adopt renewable energy sources, enable carbon-neutral operations, and contribute meaningfully to global climate targets.

Globally, governments and regulatory bodies are also introducing stricter regulations to tackle climate issues. For instance, the EU's Green Deal mandates decarbonisation in all sectors, including aviation. As part of this, airports must address community concerns such as noise pollution and local environmental impact.

Heathrow Airport's 'Fly Quiet and Green' programme incentivises airlines to use quieter, cleaner aircraft through a ranking table and has led to a step change in noise levels. This demonstrates how aligning the community's interests with sustainability objectives can create positive outcomes for multiple stakeholders.

Sustainable airports are better positioned for long-term success from increased economic resilience, benefiting from reduced operational costs, increased passenger satisfaction, and mitigated risks from climate disruptions.

In 2020, San Francisco International Airport (SFO) invested $86 million into 10 energy-saving initiatives, designed to reduce its future energy use by 54%. This better protects the airport from energy scarcity by reducing energy demand.

Sustainability improvements can extend beyond technology, as demonstrated by Baltic Ground Services Group's eco-driving training for ground handling. This initiative reduced fuel consumption by approximately 5% by optimising transportation routes and avoiding unnecessary driving.

Planning for resource efficiency and sustainability ensures airports improve their economic resilience amid growing environmental risks.

Balancing expansion with sustainability objectives

Sustainable master planning demands a delicate balance between infrastructure expansion and environmental stewardship.

Given the long-term horizon of master plans, often spanning 20–30 years, forward-thinking strategies are crucial in future-proofing operations.

Planning for emerging technologies during this phase helps mitigate the risk of costly retrofitting in later years. For instance, accommodating the electrification of ground support equipment requires robust charging infrastructure within plans, even if the current adoption of such technology remains limited.

While technological advancements will continue to enhance operational efficiency, meaningful progress in sustainability will depend on partnerships among stakeholders. Aligning business objectives across the aviation ecosystem fosters stronger relationships and creates opportunities for significant improvements.

Achieving net zero, however, requires both internal and external stakeholder buy-in, emphasising the importance of a shared commitment to sustainability goals.

Strategies for sustainable development

There is no silver bullet to achieving sustainability goals and the aviation sector's decarbonisation journey will likely involve a combination of strategies.

These include enhancements in operational efficiency, widespread adoption of sustainable aviation fuels (SAF), electrification of ground operations, and the eventual deployment of hydrogen-powered aircraft.

Achieving net zero emissions will require more than a single solution, it demands a multifaceted, integrated approach. For instance, airports in the Asia-Pacific have identified five focus areas to meet their decarbonisation targets, underscoring the necessity of a portfolio-style strategy to effectively address the complexities of sustainability goals.

On fuels specifically, new technology requires infrastructure adaptations. SAF, which is compatible with existing infrastructure, offers a near-term solution while electrification and hydrogen are expected to make a step change in sustainability.

Airports like Amsterdam Schiphol (AMS) are already investigating hydrogen fuelling systems to prepare for a longer-term transition.

Incorporating modularity and optionality into master plans enables airports to adapt to evolving technologies and enables a faster uptake, particularly given differing expectations and implementation path.

Hydrogen's route to market demonstrates the need for flexibility at airports. IATA's latest forecast indicates that 54% of the regional fleet could be hydrogen fuelled aircraft by 2050.

However, the high development and implementation cost could lead OEMs to bring hydrogen to market on narrowbody or even widebody aircraft.

Airports can also reduce the carbon footprint of expansion works through integrated design and innovative construction practices. Circular construction principles – for instance, reusing building materials – have been employed at Oslo Airport (OSL) in Norway, resulting in an estimated 35% reduction in carbon dioxide emissions.

Similarly, digital twin technology allows designers to simulate operational performance and optimise energy efficiency before construction begins.

Brussels Airport (BRU) used digital twin technology to demonstrate the potential for the airport to reach net zero and determine the most efficient way to achieve this.

Carbon neutrality remains one of the most effective strategies for improving an airport's sustainability but requires robust investments in renewable energy and infrastructure.

Payback periods for green technologies can often be measured in decades and high capital costs can place strain on an airport's financials.

Airports are turning to green bonds to raise funds for capital-intensive projects. One notable example was JFK Millennium Partners' issuance of a $1.85 billion green bond in 2024, to finance the expansion and operation of Terminal 6 at New York's JFK International Airport.

Additionally, government grants serve as an alternative funding source for airports. In 2023, the US's Federal Aviation Authority received $268 million in grants and allocated approximately $92 million to sustainability projects.

Integrated data systems play pivotal roles in aligning stakeholders by offering a unified platform for tracking emissions, fostering transparency, and ensuring accountability.

With standardised reporting guidelines, airports and their partners can identify areas for improvement and collaboratively implement effective solutions.

Advanced systems such as the Aircraft Communications Addressing and Reporting System (ACARS) further enhance this capability by providing real-time aircraft data. This data can optimise air traffic management, ground support equipment, and ground handling agent operations, contributing significantly to emission reductions and operational efficiency.

Smart resource management empowers airports to reduce their environmental footprint by optimising resource utilisation. Frankfurt Airport (FRA), for example, has implemented 'smart, needs-driven' technology powered by AI algorithms to regulate air conditioning systems, achieving annual CO_2 emission reductions of up to 1,900 tonnes.

In some cases, airports have gone beyond conservation, generating resources that benefit local communities. Bengaluru International Airport (BLR) in India, for instance, has become water-positive through initiatives such as rainwater recharge pits and integrated waste management systems.

Looking ahead, innovative technologies like harvesting kinetic energy from aircraft takeoffs and landings are being explored, representing the next frontier in resource efficiency and sustainability.

It is important to remember that airports serve as critical social infrastructure, and their development should be community centric. Local communities are inherently affected by airport developments making their involvement important during master planning.

Partnering with local stakeholders to protect biodiversity and promote cultural heritage creates a sense of shared ownership. Inclusive planning ensures that airports remain socially sustainable, aligning with community interests.

Conclusion

In a multi-stakeholder environment, airports must lead by aligning efforts and fostering collaboration. Frameworks like the Civil Aviation Authority of Singapore's sustainable aviation blueprint, demonstrate how partnerships can create shared visions and direct resources effectively.

By embedding stakeholder needs into sustainable master planning, airports can address environmental imperatives, regulatory demands, and economic resilience.

Through initiatives such as integrating renewable energy and adopting community-focused practices, airports can balance growth with sustainability, driving the aviation industry toward a greener future while fulfilling their social and environmental responsibilities. AW

Uniquely PDX

Being resistant to earthquakes and built from locally sourced materials are two of the key sustainability drivers behind the design of Portland International Airport's new terminal, writes Vince Granato, chief projects officer at the Port of Portland.

It was more than a decade ago, back in 2011, when the conversation about building a new main terminal at Portland International Airport (PDX) turned from should we make upgrades to how should we make upgrades.

The renovations to increase capacity, flexibility and resilience needed to happen, and also presented us with an opportunity to make the building more sustainable. But when we initially asked people who work at PDX, live around PDX and travel through PDX what they wanted us to do, their answer was simple: don't change it.

So, the project team set out with a mission to make PDX bigger, while doubling down on what people already loved about our airport.

Approaching it differently

When the concept was first introduced to build PDX's new main terminal out of wood, it was met with a question: Can it be built in a way that's better for our communities?

For most of the construction industry, lumber is anonymous – and that makes sense when you consider that most clients want a single, consistent product.

But we wanted to approach this big project differently. So, together, the team made a plan to not only source the wood locally (which we did), but to source it in a way that creates better outcomes for our regional forests and the people who manage them.

We tapped industry pros to help us define success and a way to get there. With five custom sourcing pathways, we prioritised conserving and restoring forest ecosystems, while creating economic opportunity for landowners, sawmills, and fabricators across the region.

Transparent sourcing had never been achieved at this scale before, and many initially said it couldn't be done. But enough partners agreed to try and see how much wood could be traced back to its forest of origin.

It took six years of collaboration with sustainable forestry pros, multigenerational foresters, and mills who were all passionate about doing the work in a way that balances ecological and economic values.

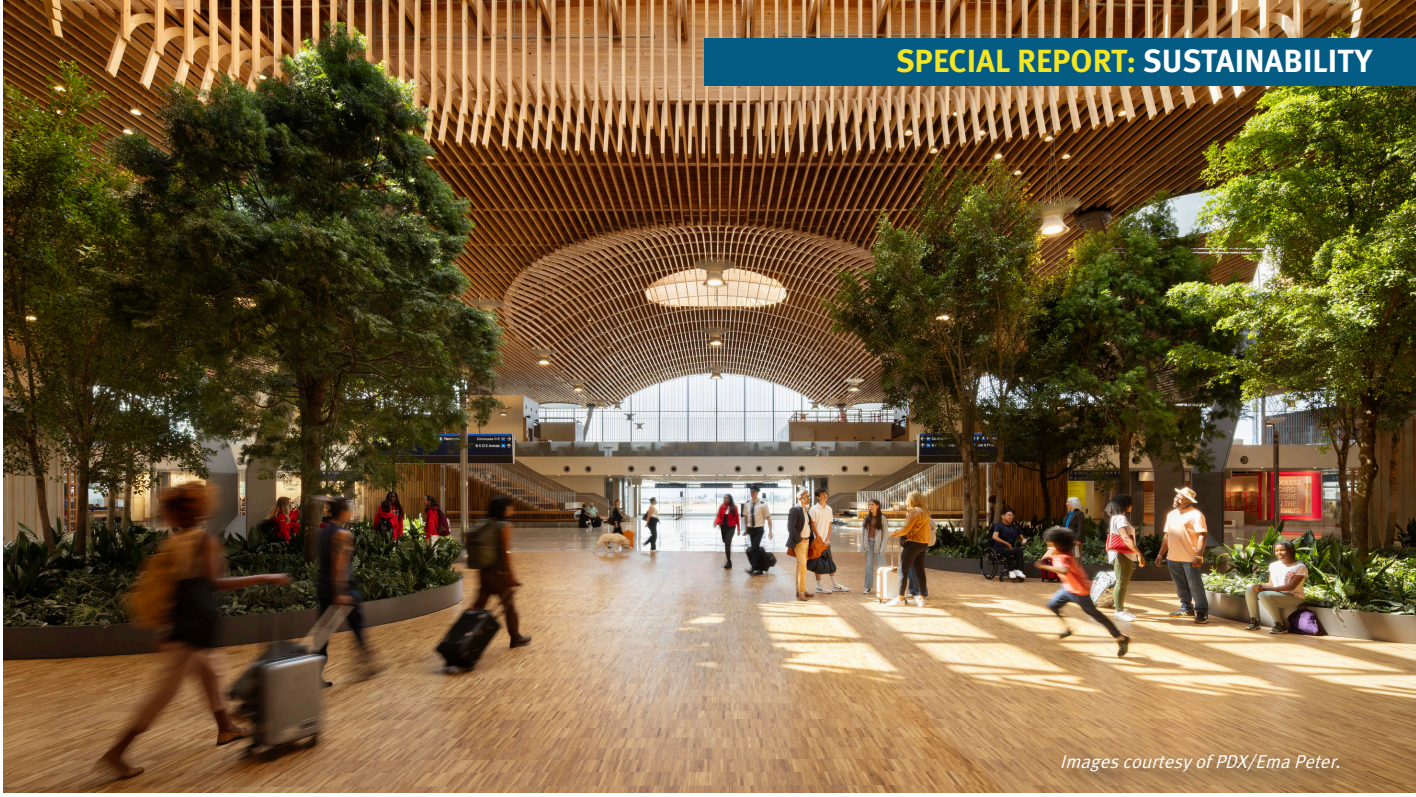
It was the first attempt at anything like this and reached targets no other projects had. In the end, 100% of the 3.7 million board feet came from within 300 miles of the airport, which kept the money in the region.

Some 72% came from landowners who are FSC-certified or practicing ecological forestry. And 30% can be traced back to its forest of origin – a number that's typically zero for large construction projects.

A feat of engineering

The undulating mass timber roof was built in 18 modular cassettes, each weighing about 1,000,000lbs, and assembled in a prefabrication yard west of the terminal. Then, in the middle of the night when no flights were operating, they were moved one-by-one across the airfield using self-propelled modular transporters.

The cassettes are held up by 34 steel Y-columns, which replaced 200 seismically outdated columns. With fewer fixed points, the terminal has far more flexibility to address changes in air travel and has better passenger flow.



Images courtesy of PDX/Ema Peter.

Due to PDX's geographical location within the Cascadia Subduction Zone, the airport's new roof was designed to withstand a 9.0 magnitude earthquake.

Seismic isolation bearings at the top of the Y-columns allow lateral movement up to 24 inches during a seismic event, while a hanging curtain wall is attached to the roof with hinged connections that permit it to slide and pivot relative to the structure below.

The curtain wall is a first of its kind. During construction, the team had to pre-load the roof every 10 feet to simulate the weight of the glass windows, then take the weights off to install the glass – similar to a teeter-totter.

This project presented some of the biggest challenges our team of engineers, architects and construction professionals have faced in their careers, and they safely solved one technical puzzle after another.

In early 2025, the final four cassettes will move into place and PDX's visually stunning and seismically resilient roof will be complete.

Creating a walk in the forest

Beyond the seismic and sustainability reasons, building the new PDX almost entirely with wood was an intentional choice to give travellers a sense of place.

Drawing inspiration from what's right in our backyard, ZGF Architects designed the space to evoke a walk in the forest. Wood is such a rich part of our regional history and landscape and when travellers arrive at PDX, they'll know exactly where they are.

PDX brings elements of the great outdoors inside the airport and uses biophilic design (or the idea that introducing nature and natural elements into interior spaces can help reduce your blood pressure and make you feel more at ease) to create a sense of calm in a busy environment.

Travellers are surrounded by lush greenery and 72 full-grown trees forming a mini greenway in the core of the airport.

The thoughtfully placed skylights mimic sunrays peeking through evergreen trees, and scenes of our region's natural landscapes play across 120-foot-wide video screens. It's a uniquely PDX experience.

Larger square footage, less carbon footprint

An airport is a 24/7 operation, and it takes a lot of energy to move people and goods in the sky, so we explored every opportunity to save energy on the ground. The architects and engineers who designed the new main enabled us to nearly double capacity at PDX, while cutting the energy use per square foot in half.

By current counts, the choices around design and local materials used will reduce the carbon footprint of the project's structure by 70%. But other factors contributing to the big savings, include:

- A ground-source heat pump – which will be one of the largest in Oregon – that cuts the heating plant's use of fossil fuels by 95%;
- 50 skylights and a 36-foot-high window wall that illuminates 60% of the terminal with daylight (even under January's cloudy skies) and reduce the need for electrical lighting;
- And fixtures (i.e. toilets, sinks, and urinals) that require between 15 and 50% less water. Plus, the airport will soon start using its own well water to flush the toilets and urinals so that by the time 35 million people a year travel through PDX, each visitor will use 50% less water from Portland's potable-water supply.

Sustainability was also a driving factor behind the decision to open the main terminal in two phases, with the remaining 40% of the terminal scheduled to open in early 2026 – marking the end of PDX Next.

This phased approach allowed us to reuse as much of the old terminal structure as was safe, renovating roughly 500,000 of the existing structure and expanding the terminal with new construction.

Between now and the end of Phase 2, our teams are working to build out even more local shops and restaurants, permanent exit lanes, and meet and greet areas, in addition to moving those final roof cassettes.

And through collaboration and innovative thinking on behalf of our partners, we're doing it all without ever closing the airport.

We're incredibly proud of what the region came together to build and can't wait for everyone to see the finished PDX.

AW

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Image courtesy of PDX/Ema Peter.

Terminal velocity

An exceptional passenger experience and commitment to sustainability were key goals for Portland International Airport's new terminal.

The new one million square foot main terminal at Portland International Airport doubles the capacity of PDX and will enable the airport to welcome 35 million passengers annually by 2045.

Featuring a 9-acre mass timber roof, the new terminal evokes the feeling of walking through a Pacific Northwest forest.

Views to the airfield, abundant natural light, and interior landscapes that celebrate the natural beauty of the region are present throughout the passenger journey.

"Everybody loves Portland International Airport," said Gene Sandoval, partner at ZGF Architects. "We had a tall order to evolve a terminal that's essentially multiple buildings pieced together since the 1950s – and double the capacity while designing an experience passengers and employees will love as much as the original."

The expanded terminal is the largest mass timber project of its kind, and it is designed with people and place at its heart. Intimate plazas with tree-lined retail concessions recall Portland's pedestrian-friendly streets.

According to ZGF Architects, the terminal's interior environment is designed to increase passengers' comfort and reduce the stress that many people experience while travelling.

PDX has always placed an emphasis on cultivating a sense of place by incorporating elements of wood, plants, and natural daylight into its design. Through collaborations with Terrapin Bright Green and landscape architect PLACE, ZGF applied the concept of biophilia holistically throughout the terminal.

As a result, almost every corner of features access to natural light and touches of Oregon's signature greenery.

Pathways are filled with trees and plants, with 72 large trees up to 25ft tall, located at the seam and throughout the terminal; cascading gardens; and over 5,000 strategically placed plants.

The landscaping provides a sense of wandering through a forest and acts as a wayfinding tool that guides passengers from security checkpoints to their ultimate destinations.

Upon entry, the reconfigured and expanded ticket hall offers clarity and ease. A central threshold directly after ticketing provides a forest-like experience with trees and dappled light that transitions passengers to the TSA security checkpoints and on to their gates.

A pre-security marketplace features stadium seating with 30% of the total concessions offering regional goods and dining open to anyone. The additional 70% of the concessions are beyond security. Retail concessions were designed as a "kit of parts" with plug and play utilities for ease of installation and flexibility in configuration and brand expression.

"The new main terminal is a testament to the vision of our incredible client, the Port of Portland, and their willingness to embrace new ideas and lead optimism," said Sharron van der Meulen, ZGF's managing partner.

"The design evokes the best of our region yet offers other airports a new model for how to expand and renovate in place to meet the travel demands of the future generations."

The project's sustainable design sets a new standard for airports worldwide. The main terminal doubles capacity while achieving a 50% reduction in energy use per square foot with a highly efficient, all-electric ground-source heat pump. Resilient design strategies enable the terminal to withstand a 9.0 magnitude earthquake in the Cascadia Subduction Zone.

A second phase of the project is underway now and will complete early 2026. It will feature additional retail and dining amenities and exit lanes on the north and south sides of the terminal.

AW

Green machine!

Its achievements, ambitions and commitment to protecting the environment quite simply make Christchurch Airport one of the greenest and sustainably run gateways on the planet, writes Joe Bates.

An ever growing list of accolades for its sustainability initiatives ensure that New Zealand's Christchurch International Airport is a world leader when it comes to its efforts to mitigate its impact on the environment.

These include becoming the first airport in the Southern Hemisphere to achieve the top Level 5 status in ACI's Airport Carbon Accreditation programme and being a regular winner in ACI Asia-Pacific & Middle East's annual Green Airports Recognition programme.

In 2023, for example, its new approach to minimising waste, and its work mentoring other airports to become more sustainable, earned it two Green Recognition awards from ACI Asia-Pacific & Middle East.

It is a member of both the Climate Leaders Coalition – a CEO led community of close to 90 organistions in New Zealand leading the response to climate change through collective, transparent and meaningful action on mitigation and adaptation – and the Sustainable Business Council, which "exists to mobilise the country's most ambitious businesses to build a thriving and sustainable future for all".

Not surprisingly, its growing reputation as a green pioneer means that its sustainability transition leader, Claire Waghorn, is often in demand at industry events to talk about aviation's climate impact and Christchurch International Airport Limited's (CIAL) sustainability strategy, and this year's joint ACI Asia-Pacific & Middle East/ACI World Annual General Assembly, Conference and Exhibition in Riyadh was no exception.

Indeed, in a one-on-one interview with PA Consulting's Kata Cserep, Waghorn revealed that the New Zealand gateway began measuring its carbon emissions back in 2006, joined ACI's Airport Carbon Accreditation programme in 2017, and became one of the first gateways in the world to achieve the new Level 5 status in the programme in late 2023.

In response to why the airport is so commited to the Airport Carbon Accreditation programme and sustainable development, Waghorn said: "There are many answers to that, not least environmental, but from an airport perspective, it's good business.

"New Zealand is geographically a long way from everyone and, as such, we rely heavily on aviation. We are a market based economy, and for New Zealand, trade [effectively] means aviation. If we aren't front footing this, the carbon border adjustment for business and trade will really start to affect New Zealand. So, from a trade, environmental and next generation perspective, we have to do our bit. This is also what people increasingly expect from a modern business."

She noted that the airport's sustainability goals had also allowed it access more financially favourable loans for key infrastructure development projects.

On the topic of renewable energy, Waghorn said: "The airlines can't get to net zero without the infrastructure to support them, which is one of the key reasons why we are building our renewable energy precinct [Kōwhai Park].

"We are trying to replace jet fuel with renewable energy, so going forwards, airports really need to turn their minds to clean energy and expand to become clean energy hubs."

In Christchurch's case, it is undertaking the solar power venture in partnership with joint venture partners Lightsource bp and Contact Energy.

Waghorn admitted that working with JV partners better suited the airport's balance sheet, and noted that she believes that airports with large landholdings should be considering future clean energy revenue streams, which would be game changing.

Kōwhai Park

In August, Christchurch Airport's proposed clean energy hub took a huge step closer to becoming reality when development partners Contact Energy and Lightsource bp confirmed their investment to build the Kōwhai Park solar farm.

With around 300,000 panels spanning 230 hectares, Kōwhai Park will help meet the growing demand for renewable energy, its initial 170MW solar farm expected to generate 290GWh of electricity per year – equivalent to the consumption of around 36,000 homes.

"Kōwhai Park highlights our commitment to support decarbonisation through creating a clean energy hub that will fuel the region's economic prosperity," noted Christchurch Airport's chief executive, Justin Watson.

"This array will be the same size as around 220 rugby fields – it will be an impressive sight for everyone flying to or from Ōtautahi Christchurch.

"It's great to see our partners Contact Energy and Lightsource bp ready to develop Stage 1 of Kōwhai Park. These two organisations have all the expertise to make this a project that Canterbury can be proud of and we're grateful to have them onboard.

"We're also grateful to Orion, Environment Canterbury and Airways for helping us reach this milestone."

Watson, who described the news as an exciting first phase for Kōwhai Park, continued: "We're focused on getting other renewable energy projects located there so we can become a clean energy hub that will enable our city and region to decarbonise and help New Zealand reach its net goals.

"The announcement paves the way for Lightsource bp and Contact Energy to begin construction in coming weeks. We look forward to celebrating more then."

Airport Carbon Accreditation leader

As mentioned above, Christchurch was among the first airports in the world to achieve Level 5 status in ACI's Airport Carbon Accreditation programme.

When the news was announced, ACI Asia-Pacific & Middle East's director general, Stefano Baronci, stated: "Christchurch Airport has been a pioneer of airport sustainability in Asia-Pacific and Middle East, being the first airport operator in the world to reach Level 4 in the ACA programme. It has confirmed its leading role in decarbonisation by being among the few airports in the world and the first in Asia-Pacific to achieve Level 5 in the Airport Carbon Accreditation programme.

"This means having reached and maintained a net zero carbon balance for emissions under its control. This success has been based on the long-term vision of the company, a clear roadmap towards net zero and the commitment of its team and industry partners.

"We hope this milestone will encourage other airports to strive towards sustainability goals and pursue initiatives that lead to more environmentally responsible aviation industry. To support our airport members, ACI APAC & MID will also play its part by assisting airports to develop roadmaps to achieve their net-zero goals."

In addition to Christchurch, the 18 other airports to achieve Level 5 status in ACI's carbon reduction programme are Amsterdam Schiphol; Stockholm Arlanda; Bengaluru-Kempegowda; Beja; Delhi-Indira Gandhi; Eindhoven; Madeira; Gothenburg; Ivalo; Kuusamo; Kittilä; Malmö; Naples; Ponta Delgada; Ronneby; Rotterdam The Hague; Rovaniemi; and Toulon Hyères.

To achieve this level of accreditation an airport must:

- Submit a verified carbon footprint for Scope 1 and 2 emissions and all relevant categories of Scope 3 emissions as per requirements of the GHG Protocol Scope 3 Guidance.
- Reach and maintain up to 90% absolute CO_2 emissions reductions in Scope 1 and 2, and commit to Net Zero in Scope 3 by 2050 or sooner.
- Apply credible carbon removals for the residual emissions.
- Develop a Carbon Management Plan (CMP) outlining the steps to achieve emissions targets.
- Develop a Stakeholder Partnership Plan to achieve Net Zero for Scope 3 emissions by engaging with the value chain, and actively drive third parties at the airport towards delivering emissions reductions themselves with regular milestones in line with their sectors' net zero frameworks and commitments.

"Christchurch Airport's been working hard at this for more than 15 years. A dedicated team of people have gone above and beyond to get us here," enthused Watson.

"I'd also like to acknowledge the assessors who independently verify our work, the Airport Carbon Accreditation Asia Pacific team, and those who have challenged us to lift the bar even higher. We thank them for their support and challenge."

Reflecting on the achievement, Waghorn said: "This is a great moment for our team. This is a challenging sector to abate and no one is under any illusion – we have a whole lot more work to do to decouple carbon from aviation and make the zero aviation dream a reality.

"We recognise however the critical role that aviation plays, especially for isolated nations, and therefore are committed to being part of the solution. That's why 90% of the work we do now focuses on how we can help other businesses, including our airline partners decarbonise.

"As a business we are working hard. We're part of a consortium to enable hydrogen aviation to take off in New Zealand and we're helping lead Sustainable Aviation Aotearoa."

Airport Carbon Accreditation is the only institutionally-endorsed, global carbon management certification programme for airports.

It independently assesses and recognises the efforts of airports to manage and reduce their carbon emissions through its levels of certification: 'Mapping', 'Reduction', 'Optimisation', 'Neutrality', 'Transformation', 'Transition' and 'Level 5'.

AW

Innovation all the way

Joe Bates reports on some of the highlights of the recent Airports Innovate conference and exhibition in Rome.

All roads led to Rome for this year's Airports Innovate conference and exhibition which once again showed that airports are becoming increasingly innovative in the ways that they operate and plan for the future.

New technology was, of course, high on the agenda, although as conference master of ceremonies, SITA's Catherine Mayer was quick to point out, the event was also about people as innovation comes in many forms, with IT invariably acting as the enabler for airports and their staff to be more efficient, sustainable and customer friendly.

As a result, the wide scope of the conference led to it addressing a host of different challenges and opportunities facing the world's airports, ranging from accommodating traffic growth and a new era of advanced air mobility to making aviation an appealing career for future generations.

In her opening remarks Mayer, SITA's vice president for airports, noted: "We typically think of artificial intelligence, AI, when they talk about innovation, but the true definition of innovation is any new idea, method or a device that changes the way that things have been done.

"Innovation is also very disruptive and critical for businesses and organisations. Today, in order to succeed, in order to be ahead of the competition, and in order to really be a leader, we have to innovate."

Vincenzo Nunziata, chairman of event host Aeroporti di Roma (ADR), provided the welcome address, warmly welcoming more than 400 delegates from 53 different countries in attendance to Rome.

He was followed by one of the industry's most innovative airport leaders, ADR CEO, Marco Troncone, who delivered a powerful speech about the importance of innovation and industry collaboration, citing a number of examples of how Rome's Fiumicino has led the way with innovative new facilities, services and initiatives.

Indeed, Troncone revealed that innovation is a crucial pillar in ADR's mission to build the airport of the future, basing its strategy on open innovation and international co-operation.

He noted that the right attitude and culture within a company plays a key role in fostering innovation, and that the process of being an innovation trendsetter inevitably involves some failures.

Troncone added that ADR welcomes the opportunity to share views and ideas with its peers from all over the world, stating that in the search for global solutions, "the objective is not to arrive first, but to arrive together, with many".

On the opportunities ahead, he said: "I've seen the latest predictions issued by Booking.com, probably many of you have also read those. One of those was called the gate escape. Basically, we are seeing that more than a third, 34% of travellers, are interested in visiting a destination based on its airport, with Gen Z and millennials driving the trend.

"Among young travellers, 43% are keen to embrace indulgent airport experiences, turning layovers into luxurious pre-trip experiences.

"This means really that we have a great opportunity and challenge ahead of us to re-transform and re-position the role of the airport from a black hole, projecting passengers from point A to point B, to become distinctive places in their own right.

"It's a transformation story, which is about investment, about people, about beauty. We're working a lot on beauty here in Fiumicino."

He continues: "Everyday is more about innovation. [To make] more engaging, more enjoyable airports, as well as more efficient, safer and more resilient infrastructure. And this is exactly why we are gathering here, really to create a new story, to create our future.

"Rather than technology wizard gathering, I see this event as a gathering of dreamers. An inspiring event for aspiring people looking at the airport of the future."

Next up were State of the Industry addresses from ACI World director general, Justin Erbacci, and ACI EUROPE director general, Olivier Jankovec.

Speaking first, Jankovec addressed the region's traffic and financials, revealing that 43% of European airports achieved a full passenger recovery in 2023 although the 2.3 billion passengers handled across the continent was still down 6.3% of pre-pandemic 2019.

In terms of financials, he told delegates that Europe's airports are now much closer to pre-COVID profit levels, with the overall 7% upturn in revenues in 2023 being driven by non-aeronautical activities. Nevertheless, rising operating costs now 14% above 2019 makes for a challenging environment with Europe's airports facing debts of €130 billion – 33% higher than in 2019.

Jankovec stated that the good news is that he felt that Europe's airports had "finally turned the corner in 2024" with passenger levels up by 7.4% in the year to date and freight volumes soaring by nearly 12% in the first 10 months of the year.

These figures mean that 49% of the region's airports have experienced a full passenger recovery, although the market was still fragmented with big differences in performance levels between countries, non-EU nation Albania doing best of all with passenger numbers currently 225% above 2019.

Looking ahead, ACI EUROPE forecasts that this year's predicted 3% rise in passenger volumes over 2019 will be followed by healthy annual increases vs 2019 of 12% in 2025, 19% in 2026 and a significant 24% in 2027.

Downside risks to this projected, warned Jankovec, are the delay in aircraft deliveries and availability of spare parts; the airlines' capacity discipline and focus on yields; airline consolidation and network rationalisation; the economy; and geopolitics.

He also touched on climate change and how it is impacting on travel as well as on airport operations and airport infrastructure, citing this year's floods at Dubai International Airport and most recently in Palma and Valencia in Spain as the most extreme examples of changing weather patterns.

Coming to the end of his presentation, Jankovec referred to today's market as "the age of risks and uncertainties", noting that this means that resilience and future proofing is key, especially when it comes to sustainability and airport business models.

"When it comes to the transformation agenda, the new airport value creation model has three key pillars – sustainability, innovation, and diversification," said Jankovec.

ACI World's Erbacci used his time on stage to note that globally the industry was moving from a period of recovery to a period of growth, with a total of 9.5 billion passengers expected to pass through the world's airports in 2024 – a rise of 10% on last year and, significantly, a 4% increase on pre-COVID 2019.

This year's upturn, he noted, happened despite two global conflicts, grounded aircraft due to engine and faults and maintenance, delayed aircraft deliveries, human resource issues, and high ticket prices.

From a long-term perspective, he said ACI World is projecting continued significant growth with global traffic doubling to 18.5 billion passengers per annum by 2042 and a little above 23.2 billion in 2052.

Yet despite the good news, Erbacci confirmed that airport profitability is in decline, with globally airports experiencing decreased revenues and rising debt levels further weaking the financial health of the industry.

"The expected significant traffic growth and the challenges of financing new infrastructure means that ACI's strategy focus will be on championing the cause for the transformation of airports to help them deal with this growth and be financially viable.

"One of the areas we need to focus on is how airports use existing capacity more efficiently and sustainably by using new technologies that help us get more out of what we have today.

"We also need to look at how we develop and manage new infrastructure that will provide more safe and sustainable capacity. Then we have to help airports figure out how to adapt commercially to maintain and improve financial viability as they can no longer depend on passenger growth to fund capacity increases and operational improvements.

"There is also the need to improve the efficiency and safety of operations and, most importantly, the overall customer experience.

"These are the areas we are focusing on and the challenge for all of us is how we use innovation to meet these goals."

He concluded by pointing out that collaboration and innovation across the industry is key to the future success of aviation, stressing the importance of executive support for innovation and innovative cultures that give people the freedom to take risks and innovate.

A busy opening session ended with ACI Asia-Pacific & Middle East's director general, Stefano Baronci, sitting down with Dubai Airports CEO, Paul Griffiths, for an engaging conversation about the future of aviation.

Baronci, who prior to the event noted that "innovation is no longer a luxury but a necessity for airports in today's fast-evolving aviation landscape", opened their session by touching on traffic growth and highlighting some examples of airport innovation across the Asia-Pacific and Middle East regions.

His snapshop of the region included discussing a new innovation survey of 22 airports in Asia-Pacific and the Middle East which revealed that 82% of the participants had already inplemented biometric technology and 64% technology such as robots and AI powered tools to enhance terminal operations for passenger flows, cleanliness and security.

Although the survey discovered that the use of automated robots or self driving vehicles on the apron was still in its infancy across the region with just 9% of airports trialling or utilising such technology, 41% stated that it was in the pipeline.

Interestingly, ACI Asia-Pacific & Middle East's Innovation Survey showed that 82% of the 22 airports surveyed had created their own dedicated Innovation Department.

The always top draw Griffths followed suit by addressing a number of innovative concepts and procedures that could transform the industry going forward, and shared his thoughts on how airports can drive economic growth and become destinations in their own right.

He indicated that some of the technologies and new concepts being trialled and tested by Dubai Airports today could be used in the next development phase of Dubai World Central-Al Maktoum International Airport, which if all goes to plan, will ultimately become the world's largest airport handling in excess of 260 million passengers per annum.

A great believer in the power of technology, Griffths noted: "When I arrived at Dubai Airports in 2007, I was told that the maximum throughput we could get through Dubai International Airport [DXB] was 65 million passengers. Since then we have persistently deconstructed every point of the passenger journey and reconstructed it with more technology and greater efficiency, and we will handle 93 million passengers this year.

"In 2007 we handled 32 million passengers and had 5,500 staff. Now we have 93 million passengers and 1,700 staff, so the technological efficiency we have achieved by just keeping people moving has been amazing.

"If you can double the throughput by halving the processing time that a passenger has to endure going through an airport you have achieved three things. Amazing increases in capacity, avoided investing in costly new infrastructure and increased customer satisfaction levels."

Griffiths, who has overseen DXB's rise to become the world's busiest international airport, also spoke about alternative flying modes such as eVTOLS and their role in driving sustainable aviation and his passion for music and specifically church organs!

Bob Kwik, worldwide head of airports and ground transportation for Amazon Web Services followed with an address about 'Charting New Skies with Generative AI' ahead of two panel discussions. The first around the rather wordy topic of 'How to Put Innovation at the Very Core of Your Business and Truly Execute it' followed by 'Innovation in Improving Daily Operations'.

In the hot-seat in the first panel – moderated by Pierre Charbonneau, ACI World's vice president for events, commercial programmes and services – Riga Airport's CEO and chair of the executive board, Laila Odina, stated the Latvian airport has its own innovation team and actively encourages staff to submit ideas on how it could make improvements.

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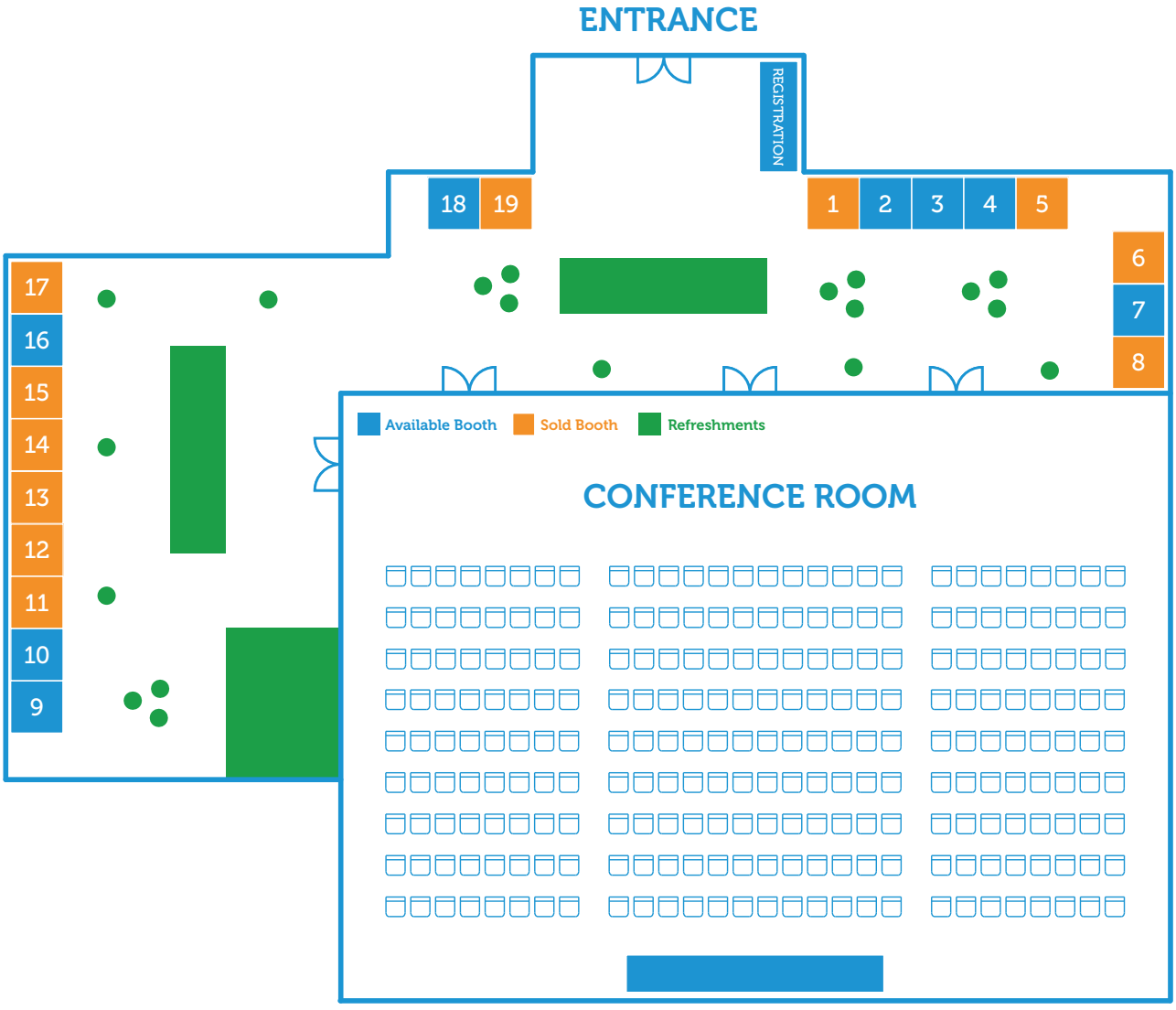

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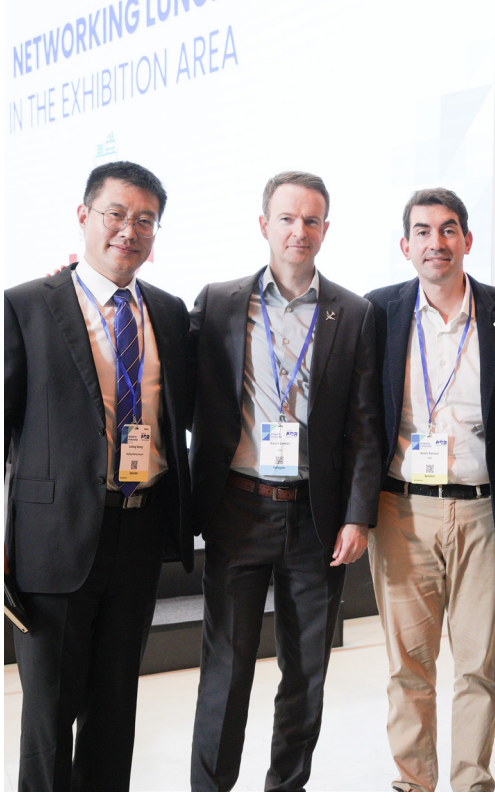

Speaking on the same panel, ADR's senior vice president for transformation and technology, Emanuele Calà, described the number of ways the airport operator put innovation at the heart of the business, ranging from establishing its own highly successful Innovation Lab in 2021 and holding regular hackathons.

"Innovation is not just a buzz word for us, it is a key pillar of our business strategy," stated Calà. "It is not a goal, it is a lever to help us meet the challenges that we face, such as raising capacity, increasing customer satisfaction and sustainable development.

"Everyone has a part to play in innovation, it is not just about the innovation team or the IT department. Everyone in the company can contribute."

Innovation means adding value to processes and procedures across the entire airport ecosystem, stated Ismail Polat, senior vice president for development at Dubai Airports.

The Innovation in Improving Daily Operations panel boasted a diverse group of speakers that included Beijing Daxing's general manager of international affairs, science and technology department, Lubing Wang, and representatives from SITA, Aurrigo, Lufthansa and ADB Safegate.

Talking about artifical intelligence, SITA's senior product manager for total optimizer, Gareth Lawton, stated that AI will actually empower people, enhance airport operations, and help them meet their respective capacity and sustainabilty challenges while also ending the traditional practice of teams working in silos and not sharing a holistic vision.

He told delegates: "We believe that AI is going to be a critical enabler that helps us tackle problems in a number of different areas. Sensationalist news stories about evil AI coming and taking people's jobs couldn't be further from the truth.

"Instead, we think AI should be treated as a junior member of your team and given repetitive, simpler tasks. You still need to tell the AI what it needs to achieve, what it needs to report, and check that it has done it in the way you need. Far from replacing humans, it will promote humans to do things that people are better at, such as strategic thinking and engaging with other humans."

In a similar vein, Tenille Houston, vice president of public relations and communications for autonomous vehicle specialist, Aurrigo, stated that the next generation of autonomous electic ground vehciles would increase safety by helping staff who would no longer have to handle heavy loads and work in all weathers on the ramp.

She added that such equipment will also increase operational efficiency and help airports cope with staff shortages and reduce their CO_2 emissions.

Beijing Daxing's Wang noted that the Chinese airport's commitment to improving daily operations extended to it operating an energy efficient terminal while the elecritifaction of 80% of its airside vehicles and utilisation of windpower had reduced its CO_2 footprint by 150,000 tonnes per annum.

Also on the panel were Lufthansa's head of project and processes, group, Stuart Holdstock, and Gert Taeymans, ADB Safegate's business vice president for Europe.

NACO's managing director, Esther Kromhout, opened the afternoon proceedings with a presentation called 'Resilience by Design', which covered some of the ways innovation is being used in response to more challenging regulations, economic prospects and climate events.

The renewable energy debate then got into full swing with a panel discussion entitled 'From Air-ports to Ener-ports: Innovation in Hydrogen Infrastructure and Energy at Airports'.

Discussing the impact the adoption of hydrogen as a fuel source for aviation could have on the industry as well as the potential for airports to effectively reinvent themselves as energy providers were Aena's director of sustainability, Ana Salazar Lopez-Pedraza; Zeroavia's director of infrastructure, Peter Gallen; and Fraunhofer Institute's senior researcher and project manager, Karsten Uhing.

Aena's Lopez-Pedraza believes that airports have to reinvent the way that they operate to meet aviation's sustainability goals, noting that "Aena's airports are working to adapt to the new needs of our customers in terms of the supply of sustainable energy and fuels".

This strategy, she said, included looking at hydrogen, which she believed could become a key energy source across airport sites and, potentially, an "energy backbone" for airports by 2050.

Zeroavia's Gallen believes that it is time for airports to look at upgrading their refuelling infrastructure so that they are ready for hydrogen production and storage, especially with hydrogen powered aircraft expexcted to take off in 2026 and possibly operating transatlantlic services by 2040.

The Fraunhofer Institute's Uhing suggested that a possible future scenario for the development of hydrogen for the aviation industry might involve airports forming investment bodies with partners from other modes of transport to lower the cost of its production.

The spotlight then turned to air traffic control and efforts to achieve a Single European Sky when Andreas Boschen, executive director of the SESAR 3 Joint Undertaking, delivered a keynote speech discussing the role of airports in delivering the Digital European Sky.

He shared the tangible benefits brought by SESAR JU solutions, including enhanced safety, cost efficiency, and improved connectivity, and highlighted the European ATM Master Plan, a roadmap prepared in consultation with all European stakeholders that will serve as a powerful tool for transformation.

We were now into the last few sessions of a busy day and, in the first of these, attention was turned to the the need for innovation in staff recruitment, retention and progression to ensure that the industry continues to attract the talent it will need in the future.

And in a surprise twist to the usual set-up, the panel was actually made up of comparatively new recruits to the industry, who spoke about their experiences, the initial challenges they faced and offered advice to airports on how they might consider doing things differently when recruiting from Generation Z.

All three – Aline Henne, who works in digitalisation and innovation at Stuttgart Airport; Anushree Misra, an ORAT co-ordinator at Noida International Airport; and Diogene De Souza, an airspace and ATM specialist at London Heathrow – admitted that they suffered early frustrations in their jobs partly due to their employees not fully realising the different skill sets they offered.

Henne revealed that in her early days in the industry she felt that when she questioned the status quo she was was often met with frustrating comments like "we've always done it that way" and Misra believed that there needed to be more "open mindedness" from employers when it comes to dealing with young professionals.

For his part, De Souza believes that when appealing to young professionals, potential employers need to be good communicators and be honest and upfront about what they expect from new recruits, potential career advacement and pay.

McKinsey & Company partner, Giulietta Poltronieri, and Bologna Airport's HR director, Marco Verga, were also on the 'HR Innovations & Perspectives from Young Professionals in Aviation' panel, moderated by Dornier Group's director of airports and aviation, Tine Hass.

The conference part of Day 1 effectively ended with Pablo Lopez Loeches, head of ideation and entrepreneurship at Aena, moderating a session dedicated to startups.

Day 2 got off to a lively and upbeat start with a ceremony for winners of the ACI World Technology Awards, an annual event held in partnership with Amadeus.

You can read more about the awards and the respective winners (Dallas Love Field for its 3D LED Holographic Signage Fan Displays), Toronto Pearson (Optimising Turnabound Operations Using AI), ADR's Emanuele Calà (Best Airport Innovation Leader), and Gerald Ford International Airport (Ford Launchpad for Innovative Technologies and Entrepeneurship – FLITE) on page 9 of this issue.

Two interesting and very different panel sessions followed, the first of which focused on Advanced Air Mobility (AAM) and the progress being made on the development of eVTOL vehicles and vertiports across the globe.

All three panelists involved in the AAM debate – Alban Negret, Groupe ADP's head of innovation and corporate venture; Hyungkyu (Chris) Woo, Korea Airport Corporation's senior manager of advanced air mobility office; and Ivan Bassato, chairman of vertiport development company, UrbanV – agreed that the new mode of transport is coming, and that airports will have a part to play in their development.

Indeed, advancements in AAM technology and the development of on the ground facilities at airports and elsewhwre were addressed by the panel along with potential timescales for the widespread introduction of the technology.

Woo revealed that KAC plans to build a vertport at Gimpo Airport that will serve the Seoul Metropolitan Area, although Jeju Island is expected to become the first region to handle AAM operations in South Korea with eVTOL flights starting in 2032.

He said: "Leveraging our extensive experience in aviation, we are positioning AAM as a future core business. We believe it will provide seamless future mobility connections and broader aviation services frontier."

While Groupe ADP's Negret reminded delegates that in August 2024, after years of testing, the company launched the world's first operational vertiport in collaboration with Volocopter and the French Civil Aviation Authority.

Located close to the Château de Versailles in Saint-Cyr-L'École, it exclusively handled eVTOL flights between Paris and Versailles this summer. Together with the Paris Hospital Authority and ADAC, Groupe ADP is now exploring the potential of using eVTOLs to transport medical supplies and emergency evacuations in the Paris region.

UrbanV Bassato's spoke about ongoing vertiport/eVTOL projects in Italy at Rome's Fiamicino Airport as well as in Bologna and Venice and outlined the bigger global picture for the development of the new mode of transport based on projects in Brazil, the EU, USA, UAE and Saudi Arabia.

According to his data, the US, UAE and Saudi Arabia are leading the world in investment and market readiness with eVTOL manufacturers Joby, Archer, Beta and Eve forecasting the launch of their first commercial in the US, UAE and Brazil respectively in 2025/2026.

Issues such as using data to help airports reduce green house gases, the value of digital twins and robotics were covered in the second panel, 'Navigating Tomorrow: Using Data and AI to Forecast the Future'.

In the spotlight for this one were Narita International Airport Corporation deputy general manager, Tatsuya Izumi; Vancouver Airport Authority's director for innovation and product development, Chris Gilliland; Cirium's vice president of product, Niha Shaikh, and WSP's global AI director, Massimo Dragan.

It was followed by a panel discussion about 'Innovation for the passenger experience' which addressed the importance of change management in driving innovation and how airports collaborate with startups among a host of other issues.

SEA Milan Airports' head of innovation, Maddalena Spreafico, reaffirmed that innovation is a key stratetic pillar for the Italian airport operator.

While fellow panelist, Aena's director of innovation and customer experience, Luis José Caõnón Ordóñez, described his company's efforts to innovate and enhance the passenger experience by using AI and other technologies at its airports across Spain.

Also on the lively and entertaining panel were Neil Barnfather, chief commercial officer of Goodmaps; and Kristof Philips, chief commercial officer of TCR International.

A 'Climate Adaption Briefing' by ACI EUROPE/Eurocontrol followed before a panel discussion on 'Enhancing Sustainability Through Innovation' brought an end to the conference sessions.

In the latter, Christel Vandenhouten from Brussels Airport provided an overview of the impressive strides Brussels Airport is making in its decarbonisation journey and the continued success of Stargate, an EU Commission backed initiative to designed to accelerate aviation's green transformation.

Innovation is at the core of Brussels Airport's Stargate strategy, said Vandenhouten, which features 30 different projects with a focus on decarbonisation, improving the local environment, and a modal shift away from CO_2 emiting vehicles.

She noted that enhancing the local environment meant embracing the electrification of ground equipment and the testing of new technology such as the Taxibot, and that BRU's decarbonisation goals included developing an on-site facility for research for gathering insight into SAF blending, its supply chain and certification processes.

While Turin Airport's operations, development and maintenance director, Lorenzo Gusman, told the audience that his gateway was now focused on reducing Scope 3 emissions and was preparing for the first electric powered aircraft flights within the next 10 years.

A member of the EU backed TULIPS project dedicated to developing innovations that facilitate the transition to low-carbon mobility and enhance the sustainability of airports, Turin Airport has its sights set on becoming a 'Smart Energy Hub' using a combination of solar and wind for power and hydrogen and SAF to fuel aircraft.

That just left time for the announcement that Korea Airports Coporation will host next year's Airports Innovate conference in Busan in South Korea in November 25-27, 2025. Based purely on what we heard and saw from members of the KAC team in Rome, it promises to be another inspiring event. AW

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Spotlight on **Megahubs**

OAG's chief analyst, John Grant, explains why Megahubs are nothing without their regional connectivity.

Everyone wants to be "mega". It's a sign of importance, position, value, and sometimes wealth, and airports are just the same, they love to be Megahubs; or at least some of them do.

The term Megahubs may have been around a few years, but its more formalised usage and recognition came into focus with the launch of OAG's Megahub Index report in 2015, which helped solidify the term in industry and public discussions about air travel.

Now heavily used in the aviation sector, the performance and growth of Megahubs is tracked on an annual basis. But what makes a successful Megahub?

Incredible connectivity and networks

In addition to handling more 50 million passengers and tonnes of cargo per annum, the very largest airports in the world are also major economic generators.

The very best such Megahubs combine both a wide range of destinations served and, in most cases, that means more than one hundred plus connecting markets and more often than not connected with a high degree of daily frequency.

Indeed, the annual OAG Megahubs report counts both factors as key variables in our connectivity algorithm, and it's clear that airports falling into this prestigious category are always looking for an edge over their rivals.

Becoming a Megahub requires a huge investment, the support of local airlines from both the legacy and low-cost sectors, close partnerships with key regulatory authorities, a commercial mindset and a degree of geographic luck; the right place, right time mantra is crucial.

But above all of those factors the most important criteria for a successful Megahub is people, and a growing population with an emergent middle class with increasing disposable income is the perfect combination.

In their 2019 Global Market Forecast, Airbus predicted that there will be ninety-five Megahubs by 2038 with cities such as Lagos, Rio de Janeiro and Philadelphia joining the elite club.

Increasing automation and AI

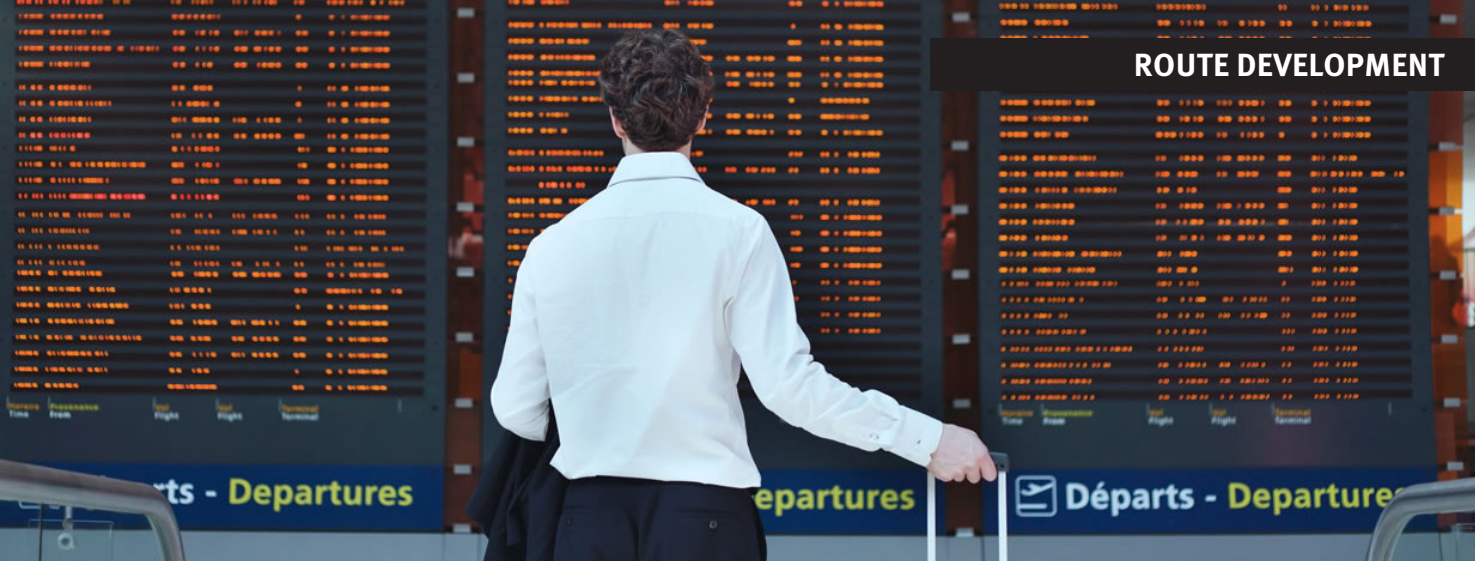
Handling increasing passenger volumes, extra ATMs and all the operational complexity of modern-day travel requires constant investment in technology and, in more recent years the use of AI where possible.

Biometric technology is now common-place at most airports, new initiatives such as remote aircraft and airbridge parking are being trialled in some locations and it's only a matter of time before Megahubs will have to accommodate passenger drones with high value corporate executives wanting airside rapid transfers as their time becomes more precious.

Megahub airports are continuously undergoing redevelopment, frequently seeking to squeeze more and more capacity from existing terminals or runways.

That balance between contact piers and immediate connectivity, or bussing operations and compromising connectivity, requires airports to embrace the latest technology and innovative strategies while also investing in significant redevelopment.

This is a careful balance, especially if over half or three-quarters of your traffic is connecting and may spend little or nothing on the airports retail offering.



However aspirational, nationalistic or big the budget – sadly – not every airport can be a Megahub. And indeed, many would probably prefer not to even aspire to such visions and instead create their own valuable market position.

In 2024, there were over 1,100 airports worldwide that averaged more than ten flights a day, and approximately 4,200 airports that handled some scheduled flights in a year.

Therefore, Megahubs account for a very small percentage share which highlights that each airport has a role to play in the world of aviation. So, if you either cannot or do not want to be a Megahub, are there alternate positions and opportunities to develop? Absolutely!

Regional connectivity can be a powerful position

The world is a big place and while long-haul connectivity is important, it only caters for a proportion of the market and the majority of flying is within a domestic or regional market.

Airports such as Panama and Casablanca – with the support of the local carriers – have developed really focused networks of connectivity across specific markets that both create those valuable supporting volumes, and in many cases above average revenues, as they connect the more obscure and therefore higher yielding traffic flows.

In both cases, the typical sector lengths for the airlines operating are between two to five hours which allows for efficient crew and fleet utilisation without creating expensive night stop patterns for crews, and in many cases, low weekly frequency services rather than daily services are operated.

Instead of a continuous eighteen or twenty-four hours of high pressure, airports experience intense peaks of about two hours, occurring two to four times a day, which ensures necessary connectivity and offers travellers an excellent connecting experience.

While over time there is inevitably a need for some infrastructure development, the daily construction site characteristic of Megahub airports is avoided allowing both airport operators and airlines to focus on maximising their revenues and assets.

There is absolutely nothing wrong with being regionally focused, in fact it's a great position to have, but can the same be said of a segment specific airport?

Segment specific airports

Where once airports were all the same, we now have Megahubs, regional hubs and now segment specific or segment airports.

The last twenty years has seen the development of numerous airports dedicated purely to the low-cost airlines, either because they had the long-term capacity to accommodate the demand or because various regulators have directed traffic to that airport facility.

Certainly, the opening of London Stansted was a happy coincidence with the rapid development plans of Ryanair who certainly would not have had access to the levels of capacity they required at London Gatwick for example.

While London Stansted has in recent years attracted some prestigious legacy airlines, it is Ryanair's base, and the mere mention of their name sends a shudder through some carriers who might otherwise have an interest in operating from the airport.

For the airport operators, of course, the skill in accommodating the low-cost airline passenger is in maximising the non-aeronautical revenue streams, and while some travellers may complain about the barrage of retail products on offer, for the majority spending cash in the airport is part of the holiday experience.

Specialist low-cost airports have developed in all of Europe's major markets and the 'model' is rolling out in Asia and the Middle East and their presence will only increase in the coming years.

Segment specific airports have also created great, and in many cases, incontestable positions based around a combination of geography and seasonal weather conditions or events.

Greek Island airports are the extreme of such segment facilities, catering for the mass summer sun market but almost closing operations from November to April as the final tourists depart.

Airports such as Rovaniemi in Finland's Lapland region have created a whole leisure product around a few seasonal weeks of the year, initially based on day trips but now increasingly involving three or four-day packages that have sent passenger numbers soaring.

And in Christchurch, New Zealand, the seasonal advantages of a southern hemisphere summer and vast range of perishable products have created a market in which both cargo and passenger airlines add significant capacity in what is an off-peak period elsewhere.

All of which proves that for each airport in the world there is a need to both understand your market and cater for that markets needs as cost effectively as you can.

Being big or even mega may be nice although it does create daily headaches, but it's equally nice to be close to your local market and customers and maybe even have time for a coffee with that frequent flyer you see every week.

And ultimately, at the end of the day, where would a Megahub be if it didn't have connectivity from that regional hub or that niche local airport which makes all the difference to their connectivity ranking. Small can be beautiful and important!

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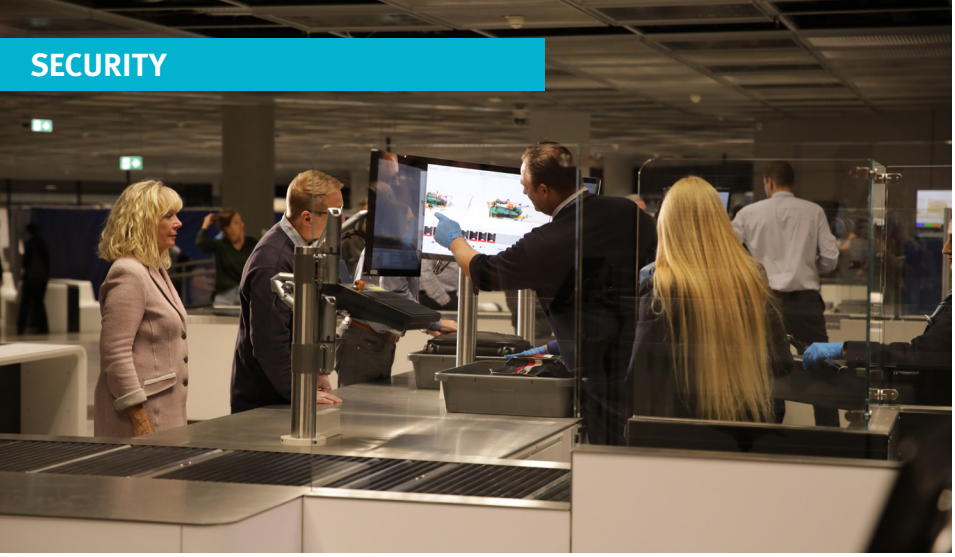


Next in line?

Smiths Detection's Hans Joachim Schöpe considers what might come next for security checkpoints at airports.

The evolution of airport security checkpoints reflects the growing complexities of global travel and the continuous effort to balance passenger safety with operational efficiency.

Indeed, ever evolving threats in an increasingly interconnected world has necessitated the development of more sophisticated detection technologies.

Computed tomography (CT) scanners are already in use all over the world and are well placed to stay ahead of threats with superior material analysis and smart learning algorithms, which aid automatic detection.

As the volume of air travel continues to increase, the integration of biometric technology into checkpoint systems looks to further enhance efficiency and security. These advancements will collectively redefine the landscape of security screening, ensuring a safer and more streamlined experience for travellers.

At Smiths Detection, we want to help make the world a safer place and as such our goal is simple – to provide the security, peace of mind and freedom of movement upon which the world depends.

Hassle-free travel: leaving liquids and laptops in the bag

In the airport passenger journey, the security screening process is often seen as one of the most congested stages, although this will improve with the widespread adoption of CT technology that no longer requires passengers to remove electronics and liquids from their bags at checkpoints.

Next-generation CT screening systems combine advanced detection capabilities with AI-powered automatic detection of explosives and object recognition, ensuring the ability to combat current and evolving threats.

Diffraction: shaping the future of threat detection

X-ray Diffraction (XRD) is poised to revolutionise security screening due to its non-invasive detection capabilities and superior level of material analysis and substance identification.

XRD is able to respond to the growing complexity of threats that are increasingly challenging to detect. One of the primary advantages of XRD lies in its ability to automatically identify crystalline materials, making it particularly effective in detecting a broad range of narcotics, explosives, and other dangerous substances.

For airports, XRD would represent a leap forward in non-invasive, automatic threat detection, significantly improving the speed and accuracy of screenings due to its ability to discriminate materials based on their molecular structure.

Its ability to identify new compounds, including those mixed with other materials, addresses one of the core challenges in modern security, ensures it is future-proofed against emerging threats, and brings false alarm rates down even further.

XRD, when integrated with CT scanning, would offer a highly advanced and efficient solution. CT focuses on detecting suspicious items based on their density and XRD leverages electromagnetic wave interference, creating a "diffraction fingerprint" to distinguish between materials, even those with similar densities.

An evolving synergy between CT and XRD technologies ensures that security screening will continue to meet the high standards demanded by increasingly sophisticated global security challenges.

Multiplexing: revolutionising real-time security monitoring

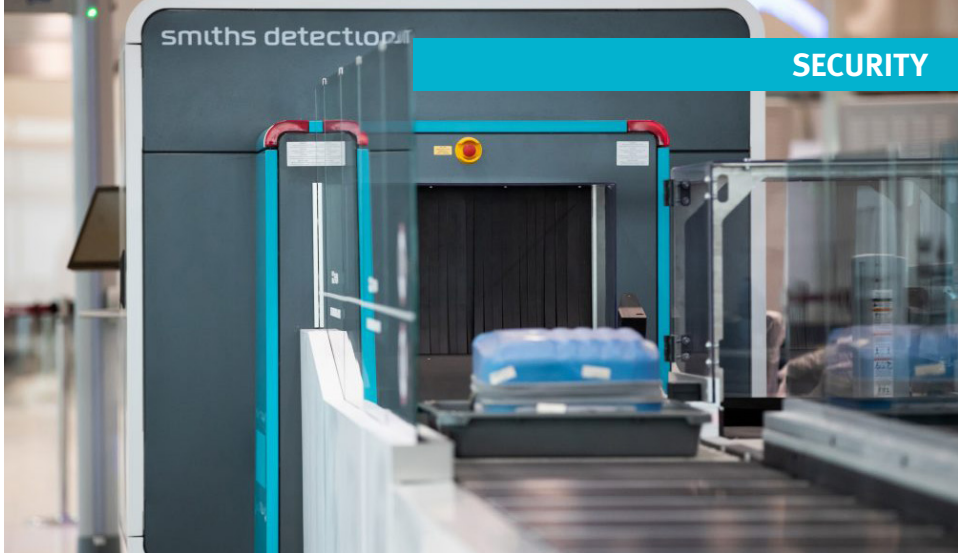
To further advance X-ray technology, multiplexing images offer the potential to significantly improve efficiency.

By delivering images from all security lanes to the first available analyst, located centrally and away from the checkpoint, this approach provides a range of operational advantages. It allows for greater flexibility in adjusting the ratio of operators to lanes and reallocating staff to accommodate fluctuations in demand.

Teams can be redeployed to different locations, airports, or even internationally, as needed.

A key benefit of centralised image evaluation is the ability to multiplex images. Multiplexing enables a flexible operator-to-lane ratio, optimising resources to meet changing demand patterns and specific operational requirements. X-ray images taken from across the airport are sent to analysts based away from the checkpoints, where they are reviewed by the first available person.

Multiple images can be analysed simultaneously by different analysts, eliminating the need to pause conveyors during inspections and ensuring maximum equipment utilisation.



Artificial intelligence: already taking off

Artificial intelligence (AI) is already demonstrating its ability to provide more efficient, adaptable, and reliable systems.

AI, through its advanced algorithms and machine learning, will play an increasingly crucial role in enhancing threat detection at checkpoints by improving the accuracy and reliability of X-ray screening systems.

Our object recognition software, iCMORE, uses AI and advanced detection algorithms to reduce the burden on operators – and potential errors – by automating the detection process for suspicious items.

Advances in AI based algorithms have enabled the real-time, automatic identification of a fast-growing list of prohibited items ranging from weapons and ammunition to lithium batteries. By framing any suspect items, image analysts can make faster, more accurate decisions which increases both security levels and efficiency.

AI algorithms are trained on thousands of real and synthetic images, allowing them to recognise patterns and detect threats more effectively than traditional human-operated systems.

The integration of AI into checkpoint security has multiple benefits, including reduced human error, lower false alarm rates, and a faster screening process.

Automated prohibited item detection systems (APIDS) and Explosive Detection Systems (EDS) demonstrate how AI is being used to enhance safety by detecting a wide range of threats from X-ray images. These systems not only enhance security but also streamline operations by supporting image analysts, reducing their workload, and minimising the decision-making burden on operators.

In the short-term these algorithms will be used to assist operators by drawing a frame around detected items, increasing efficiency and security levels. These intelligent algorithms are also central to the ongoing move towards further automation and alarm-only viewing at the passenger checkpoint.

Collaborative tech: enhancing security through open architecture

Open architecture in essence, refers to a design approach that promotes interoperability, flexibility, and collaboration among different components or systems and it is gathering momentum across industries.

A key advantage of open architecture is the ease with which components and technologies may be added, upgraded, and swapped within a system.

Naturally, complex structures such as this, which incorporate technology from diverse suppliers, require a level of standardisation. This is why it is crucial to develop common data formats and lucid oversight mechanisms. Not only do these improve the ease-of-use of open architecture-based systems, but they provide assurance on aspects such as technical standards, certification, and liability.

Open architecture therefore adds another layer to the future of checkpoint security by creating a framework where hardware, software, and algorithms from various suppliers can work together seamlessly. This means that airports can incorporate the best available technology to meet evolving security challenges.

Biometrics: fast-track security with a single look

Biometric systems, which include fingerprint, iris, and facial recognition technologies, offer a high level of accuracy in identity verification, essential for maintaining safety in an increasingly interconnected world.

Hundreds of airports globally already have biometric identification of some sort in place and adoption is increasing as passenger numbers rise and the need for even more efficient security grows.

We believe that we are leading the way by integrating biometric technology into checkpoint solutions at airports, allowing for risk-based screening practices that streamline the passenger journey. This integration not only enhances security but also improves operational efficiency, as real-time risk assessments can be conducted, reducing wait times and increasing passenger satisfaction.

For instance, matching passengers with their trays at security checkpoints can facilitate seamless transitions through border control while sharing screening results with transit or arrival airports.

As more airports implement biometric systems, the confidence in these technologies is expected to rise, paving the way for a future where biometric identification not only enhances security but also revolutionise the travel experience, making it more convenient and efficient.

Shaping safer skies: the future of airport security innovation

As airports embrace technological advancements, security processes will become faster, more accurate, and less intrusive.

The growing shift towards contactless, automated solutions – driven by the need for efficiency – will continue to reshape airport security.

As new threats emerge, security technologies and protocols will adapt, ensuring airports become safer, smarter, and better equipped to meet the demands of modern air travel. AW

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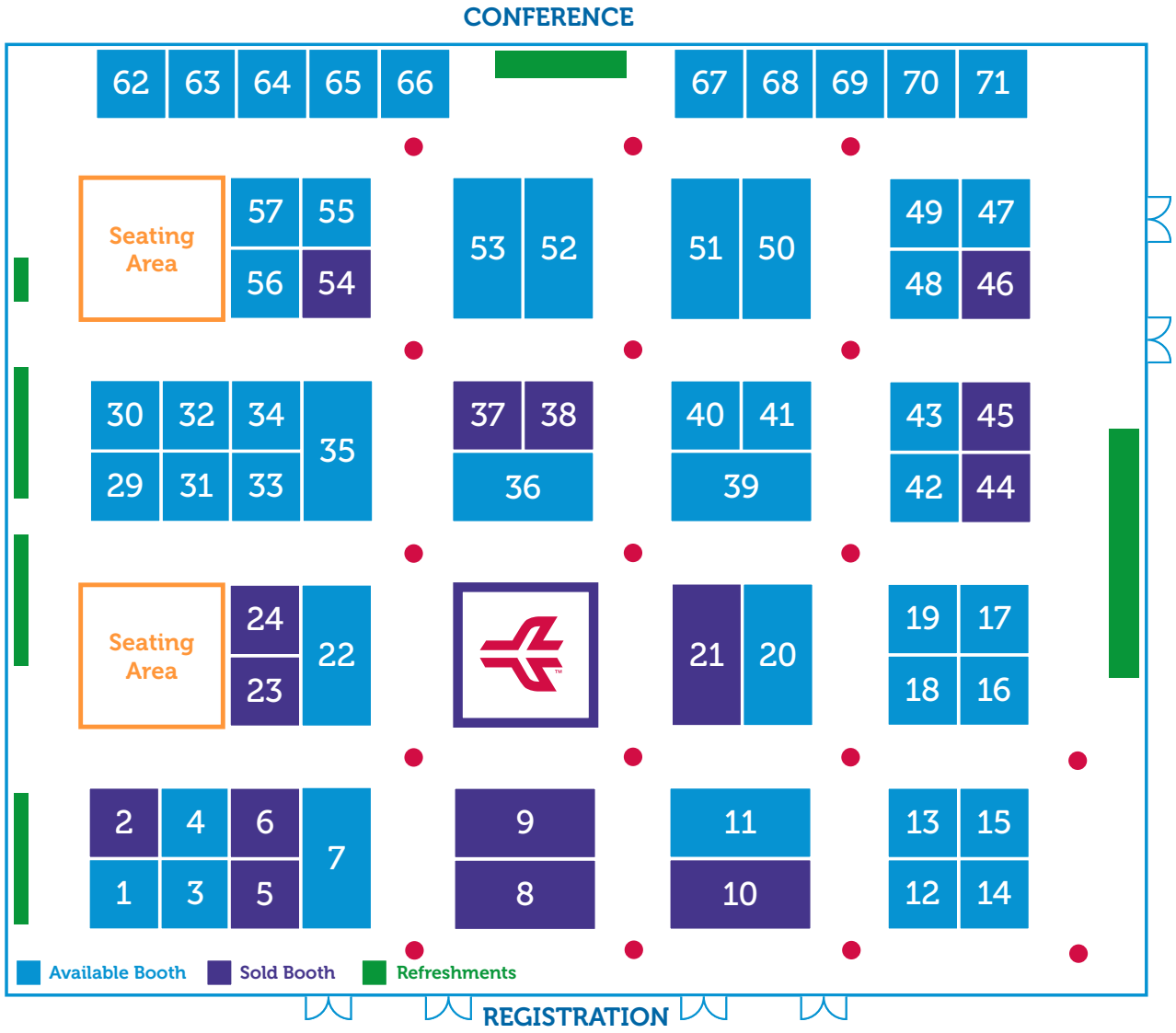

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Accelerating innovation

Richard Davies tells us more about the digital platform helping enhance operational efficiency at Copenhagen Airport.

Airports are complex ecosystems with different environments, services, and vehicles, requiring both energy and resources. They are also facing more and more complex challenges, from fragmented legacy IT systems and fluctuating fuel prices to the pressure to reduce their climate impact.

As a result, it has become even more pressing to make airport operations more innovative, more efficient, and more climate-friendly.

Copenhagen Airport, in partnership with Netcompany, is adapting to this narrative. In 2019, Copenhagen Airport and Netcompany launched Smarter Airports, a joint venture to develop a solution in Total Airport Management (TAM), called AIRHART.

AIRHART is a digital platform integrating Copenhagen Airport's operations into a 'single source of truth' platform.

By 2022, AIRHART acted as Copenhagen Airport's central nervous system, unifying operations across 4,500 users, 42 organisations, and operations around the airport into one accessible hub.

Crucially, Copenhagen Airport's use of AIRHART goes beyond the incremental improvements that define how most other airports have approached digital transformation. Instead, it represents a comprehensive shift in airport operations and a platform to accelerate innovation.

How it works

Netcompany and Copenhagen Airport replaced more than 100 legacy systems with a single platform that serves as a centralised data hub for the airport.

The platform connects the whole airport and its operations, from flight traffic management, air traffic control, passenger and baggage flow, and commercial activities to back office and business operations, into a single interface, allowing for streamlined decision-making and co-ordination.

This allows staff to react quickly to unforeseen events, minimising delays and improving the overall passenger experience while reducing manual workloads, increasing team efficiency and boosting job satisfaction.

The AIRHART platform has resulted in significant improvements to Copenhagen Airport's operations. Access to real-time data has reduced manual processes by 50%, improved forecasting and planning accuracy by 15%, and CO_2 emissions by 10%. As a result, staff are free to focus more on strategic tasks, passenger journeys have been made more seamless, and the airport is aligned with the global push for greener aviation.

A scalable solution

The Copenhagen Airport model is also scalable by demonstrating that it can facilitate gradual digital transformation without overwhelming existing systems. This means the airport can quickly implement features in phases whether that's from new providers and their technology, or to respond to regulatory requirements.

As a result, the platform has streamlined operations practically and offered a way to synergise the airport's digital and IT strategies with business demands. For example, video recognition technology can automatically recognise the timings of stages in an aircraft turnaround.

These alerts are then fed immediately to relevant teams around the airport so they can quickly adapt and react to delays or unanticipated changes in scheduling.

These efficiencies are then fed back into the airport's front-of-house operations, allowing commercial teams and airport staff to react precisely to what is happening rather than the unknown or what they expect to happen. Over time, this data allows the airport to better staff its operations and manoeuvre in a more agile way, contributing to the overall performance of its balance sheet.

To respond to the growing need for AI-enabled and predictive supply chain technology, a tool like AIRHART can also provide more accurate forecasts on passenger trends and maintenance needs, enabling more proactive adjustments around airport performance in real-time. Additionally, the automation of manual inspections frees up time for personnel across an airport.

This ability to constantly optimise the airport's operations on a practical day-to-day level and on a longer-term strategic level was crucial to AIRHART's initial briefing.

It marked a step change from adopting a new system that would need to be replaced at some point in time to one that can continually be upgraded.

As anyone involved with the running of an airport knows, the demands of modern aviation change quickly and you must be ready to adapt.

AW

About the author

Richard Davies is Netcompany's UK country manager.

Intelligent thinking

Stephan Hirmer, Amadeus' head of end-to-end passenger servicing for airport and airlines operations, considers how AI is transforming aviation.

The air transport industry is under increasing pressure to handle growing passenger volumes while maintaining high security standards and meeting the expectations of today's travellers for a seamless experience.

With Airports Council International predicting passenger volumes will grow by 10% to reach 9.5 billion this year, traditional passenger servicing methods are becoming stretched, leading to bottlenecks, delays and frustrated travellers.

This challenge is particularly acute at major transit hubs, where efficient passenger processing can mean the difference between smooth operations and system-wide delays.

And as passenger numbers continue to rise, airports must find ways to achieve operational efficiency and deliver a great passenger experience.

From streamlining airport processes to managing unexpected disruptions, AI technologies are helping the aviation industry meet these challenges.

This article examines two key AI use cases that are already delivering results: computer vision systems for passenger processing and intelligent solutions for disruption management.

These examples demonstrate how artificial intelligence can remove friction from the travel experience while helping airports and airlines to optimise their operations.

How computer vision supports smoother passenger processing

Computer vision systems use advanced machine learning algorithms and neural networks to process and analyse visual information in real time, making them ideal for busy airport environments where fast, accurate identification of passengers and assets is critical.

These AI-powered systems are particularly effective when used within biometric processing systems.

Advanced computer vision algorithms can recognise and analyse facial features with remarkable accuracy, taking into account variations in face types, poses and lighting conditions.

The technology creates what's known as a biometric template – a unique digital signature based on an individual's facial characteristics – which can be matched with high accuracy against images that are held for a short period of time.

The practical implementation of this technology is changing the way airports process passengers. Instead of relying on traditional identification documents, travellers can now choose to use their biometrics as an identifier throughout their journey.

This shift from physical to biometric identification not only enhances security, but also significantly reduces processing times at key touchpoints such as check-in, security and boarding. By automating otherwise manual checks, they are much more accurate as they remove potential human error.

An example of this technology in action is the Vision-Box Seamless Journey Platform. This system connects multiple stakeholders across the passenger journey, creating a single digital identity management platform.

The technology enables passengers to move through various airport checkpoints without having to repeatedly present physical documents, while maintaining high security standards through continuous biometric identification and verification.

The benefits of implementing such systems go beyond faster processing times. Airports using AI-powered biometric solutions report

improved accuracy of security checks, reduced operational costs and increased passenger satisfaction.

Having more intelligent systems in place also helps airports to refine their operations and allocate resources more efficiently.

As the aviation industry continues to evolve, the integration of AI and biometric technology will become increasingly important for airports looking to maintain a competitive edge while delivering the efficient, secure and seamless experience today's travelers demand.

Accommodating disrupted passengers with AI

Flight disruptions remain a persistent challenge in aviation, with a recent report finding that more than half of airline and airport leaders report levels of disruption above the 2019 norm.

Traditional manual approaches to managing these disruptions often result in overwhelmed staff, frustrated passengers, and significant operational inefficiencies, with re-accommodation processes sometimes taking 12 hours per affected flight.

The complexity of modern airline networks, particularly in hub-and-spoke systems, makes disruption management increasingly challenging.

When a flight is cancelled or significantly delayed, airlines must consider multiple factors simultaneously: available seats across their network, passenger priorities, connecting flights, and the ripple effects on crew scheduling and the broader operation such as airport slots and craft maintenance. Without advanced technology, this situation can quickly become overwhelming.

Artificial intelligence is emerging as a key tool in transforming how airlines handle disruption. Modern AI systems can process vast amounts of data in real-time, considering factors such as passenger status, connection requirements, and available capacity across multiple flights and partner airlines.

These systems use machine learning algorithms to evaluate thousands of possible solutions and identify optimal re-accommodation options for affected passengers.

The technology goes beyond reactive measures, incorporating predictive capabilities that can anticipate potential disruptions based on factors such as weather patterns and operational data. This enables airlines to take proactive steps, potentially offering alternative travel arrangements before passengers even leave for the airport.

The systems can also prioritise solutions based on various factors, such as ensuring business travellers with tight connections receive priority rebooking while still maintaining fair treatment for all passengers.

Air Canada's implementation of this technology provides a clear example of the potential benefits. Prior to implementing AI-powered recovery, the airline's disruption management was largely manual, requiring extensive co-ordination across teams and expert knowledge of its network.

The process could take anywhere from 45 minutes to several hours per flight, often resulting in congested terminals. The airline now consistently provides affected passengers with rebooking options within 30 minutes of a cancellation notice, with most travellers receiving new arrangements in just 10 minutes – a dramatic improvement from the previous average of 12 hours.

The process of creating these options is incredibly complex, but this automated system considers the airline's complete network capacity and passenger prioritisation policies in a few moments, enabling faster and more efficient decision-making during disruptions.

Passengers are also able to choose from multiple rebooking options in case the first option isn't suitable for them, ensuring their experience is the best it can be.

The implementation demonstrates how AI can significantly improve both operational efficiency and passenger experience during disruptions.

By automating complex decision-making processes and considering multiple variables simultaneously, these systems help airlines maintain service levels even during challenging situations, while ensuring fair and efficient re-accommodation of affected passengers.

The agents in charge of the system still have full control of it and can adapt the solutions it proposes for passengers if necessary.

The use of AI technology in aviation is more than just a technological advancement – it's a strategic response to the industry's evolving challenges.

As the industry continues to face growing passenger volumes and operational complexity, the strategic use of AI solutions will become increasingly important to maintain competitive advantage.

The future of aviation lies not only in overcoming these challenges, but in using technology to turn them into opportunities for improved passenger experience and operational excellence.

AW

Open for business

We round-up some of the latest ACI World Business Partner stories from across the globe.

Xovis technology aiding customer satisfaction at ATL

Hartsfield-Jackson Atlanta International Airport (ATL) has bolstered its passenger-centric profile with the terminal-wide installation of dynamic passenger information totems powered by accurate, real-time data from Xovis.

A total of 18 totems have been installed around pre-security areas at ATL that are designed as guideposts to keep passengers informed of expected wait times, subsequently reducing the stress associated with uncertainty at mission-critical terminal touchpoints.

The totems are just the latest example of the strong commitment to innovation that has helped make ATL one of the world's most efficient airports. They are also an important development in the airport's use of objective, privacy-compliant data from Xovis' AI-powered sensors, which ATL has used for nearly a decade to optimise terminal operations and enhance the passenger experience.

"The idea behind the passenger information totems is simple: Informed passengers are happier passengers," says David Sconzo, ATL's senior customer experience manager.

"Keeping 45,000,000 passengers happy is a top priority for ATL, and achieving that in an automated way, a way that maximises resource value with data from Xovis, is a win-win."

Airport Dimensions expands in South America

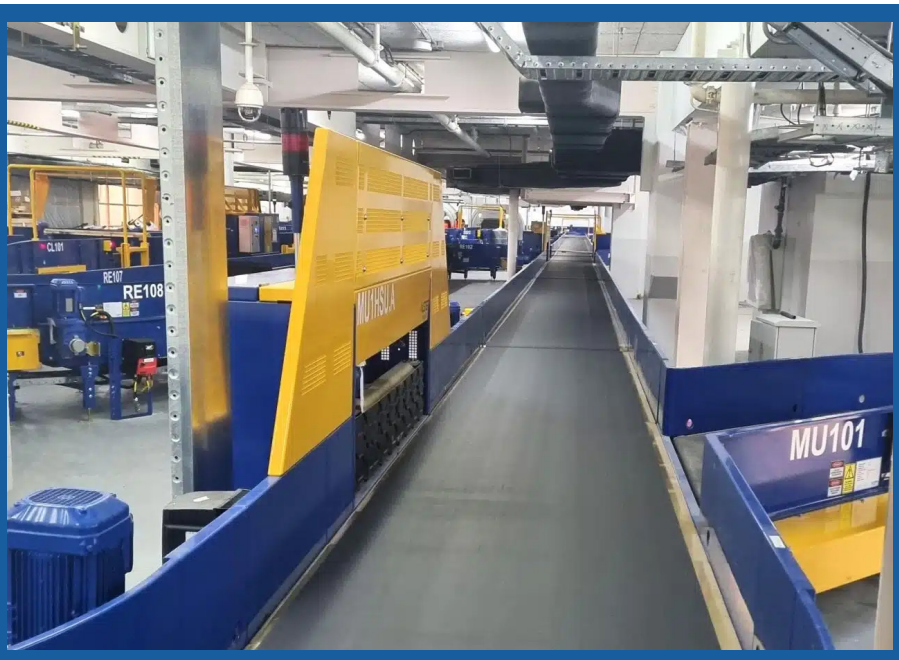
Airport Dimensions is bringing sleep solution brand 'sleep 'n fly' and leading shared-use lounge brand, The Club, to South America for the first time, starting with Lima's Jorge Chavez International Airport (LIM) in January 2025.

Up until now the company's sleep n' fly product has only be offered in the Middle East. Like in other location's, LIM's 4,600 square foot facility will provide upto 92 travellers with access to a private, stress-free environment to unwind, sleep, refresh and recharge, whether for a short rest or a longer stay.

The Club, the largest shared-use lounge brand in the US market spanning over twenty locations across North America, will also launch its biggest ever space at LIM, bringing its acclaimed lounge facilities to the region.

"We are thrilled to be part of this transformative chapter for Lima Airport," notes the company's vice president for Latin America, Giorgio Benza.

"This is just the beginning for us, as we look forward to opening two more spaces in Lima and are excited to be expanding our offering and bring even more value and services to South America."



Good end to year for Alstef

Alstef has successfully completed the installation of a new baggage system system at Princess Juliana International Airport (SXM) in Sint Maarten in the Caribbean and been awarded the contract to expand the BHS at Zagreb International Airport in Croatia.

The SXM project was part of the airport's comprehensive recovery and modernisation plan overseen by the World Bank following the devastating effects of Hurricane Irma in 2017.

The newly installed BHS will play a vital role in supporting the airport's operations as a major gateway to key regional destinations, including Anguilla, Saint Martin, and Saint Barthélemy.

The system, which includes two in-line Standard 3 CT X-ray machines – was installed in multiple phases over the past three years and is designed to enhance operational efficiency, streamline passenger experiences, and ensure secure and effective baggage processing for travellers across the region.

The Zagreb contract builds upon Alstef's initial installation of the airport's baggage handling system in 2014, which has since been managed and maintained by an on-site Alstef team to ensure continuous, reliable service.

The expansion project will add a new check-in island equipped with 15 check-in desks, allowing the airport to accommodate rising passenger numbers. Additionally, Alstef will integrate an extra screening line along with a full suite of conveyors to connect the new check-in area with the existing screening and make-up carousels.

Scheduled for completion in the first quarter of 2025, Alstef believes that the project underscores its commitment to delivering innovative, scalable solutions that drive efficiency and support growth at Zagreb International Airport.

New duty free partnership at Schiphol

Amsterdam Schiphol has announced that it will strengthen its successful partnership with Lagardère Travel Retail for the operation of more than 20 duty-free stores behind security control from May 2025.

According to the Dutch hub, the strengthened partnership will take the form of a joint venture in which Lagardère Travel Retail has 70% of the shares and Schiphol 30%.

With this, Schiphol says that it "is taking a significant step in the renewal of the retail offer at the airport and improving the experience for passengers".

Earlier this year, Schiphol invited retail parties to compete for a ten-year strategic partnership for the categories perfume and cosmetics, sunglasses, tobacco, liquor and chocolate. After an intensive selection process, Lagardère was chosen, and Schiphol and Lagardère were able to seal their co-operation agreement.

"The expansion of the co-operation with Lagardère Travel Retail is a very important moment for Schiphol in the implementation of our new retail strategy," enthuses Arthur Reijnhart, executive director of Schiphol Commercial.

"The goal is to exceed the expectations of our passengers, and we are convinced that together with Lagardère Travel Retail we can achieve this."

CLEAR CHANNEL AIRPORTS

Membership Region: North America
Type of Business: Retail & Commercial
W: www.clearchannelairports.com

Clear Channel Airports is a leader in airport advertising, operating in the biggest and busiest airports in the US and the world. Its premier network of display advertising programmes include Hartsfield-Jackson Atlanta, Chicago O'Hare and Denver international airports. Working within each individual airport's parameters and guidelines its display programmes enhance the visual quality of terminals and concourses.

HORIZON CONSUMER SCIENCE

Membership Region: Asia-Pacific & Middle East
Type of Business: IT & Communications
W: horizonconsumerscience.com

Based in the US, Horizon Consumer Science specialises in understanding travelling consumers, from the time they leave home to the time they return. Over more than 30 years it has helped airports, retailers and brands develop their offerings for travellers, troubleshoot problems that occur along the way and track and evaluate performance. It has produced the Travel Retail Catalyst Study (TraCS) since 2012.

WOOLPERT

Membership Region: North America
Type of Business: Planning & Construction
W: www.woolpert.com

Woolpert provides complete planning, design, environmental, enterprise information management (EIM), surveying, and aerial mapping/remote sensing services for capital improvement programmes. Its resourceful and innovative aviation professionals support the sustainability of projects by utilising a wide range of project delivery methods, including traditional design-bid, programme management, design-build, and construction administration services.

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PEOPLE matters

Sustainable recruitment

Richard Plenty and Terri Morrissey reflect on the recruitment difficulties facing airports today.

Demand for travel continues to grow. ACI World's 2024 Annual World Traffic Report (September 19, 2024) points out that recovery of passenger journeys from pre-pandemic levels is now complete, with 2024 traffic at 104% of the 2019 level. There will be a projected 9.5 billion passengers globally in 2024, up from 8.7 billion in 2023.

In such a growing sector it might be expected that there would also be a corresponding growth in attractiveness to potential employees. Yet the report says that labour market shortages are a potential brake on this expansion.

What is driving this shortage? Could it be that having let so many people go during the pandemic, the airport sector is facing a lack of trust as an employer of choice? Is it possible that people do not have faith in the industry to provide secure career opportunities in the way it used to?

While this may indeed be the case, there may be other factors at play. Even where the industry has had success in attracting people, it is often having difficulty in retaining them.

This is particularly the case where 'traditional' management practices remain in place, promotion opportunities are limited, there is a need for shift work, and there are less opportunities for working flexibly. Other sectors can be seen as more 'up to date' and attractive.

The immediate challenge is to address the key issues that give rise to these perceptions and encourage people to think of airports once again as a long-term employer of choice.

Firstly, it is important to make sure that the working environment is attractive to the kind of people that an airport wants to recruit and retain. Are the terms and conditions, management practices and ways of working appealing?

Secondly, it is important to ensure that new recruits have a clear path for career progression and development. Otherwise, they may look elsewhere if progress appears blocked.

And thirdly, leadership attention needs to be focused on widening the potential talent pool by paying attention to 'EDI' – equality, diversity and inclusiveness – and ensuring that equal opportunities are given to women, minorities and traditionally under-represented groups.

However, addressing these matters may not be enough to attract and retain the most talented, who are often driven by a sense of purpose, a desire to make a difference and to make a personal contribution to the societies in which they live.

They are more likely to join and stay in an organisation where their personal values align with their employers. Is there something deeper to be considered?

One missing ingredient may well be the broader challenge of sustainability. Many high potential employees seek employment in organisations that demonstrate genuine concern for the environment, biodiversity and ethical practices and values.

They will ask: do potential employers put sustainability at the heart of everything they do? Do they value innovation and promote purposeful work? Do they balance growth with environmental and social responsibility?

Do they engage in practices such as waste reduction, recycling, renewable energy sourcing, and promoting the use of public transport to work? Do they engage with local communities where they are based and aim to be a 'good neighbour'?

Paying attention to the twin challenges of sustainability – creating an attractive working environment and demonstrating a genuine commitment to a sustainability ethos – provides a solid foundation for long-term sustainable recruitment.

ARRIVALS AND DEPARTURES

Cincinnati/Northern Kentucky International Airport has announced that Spokane International Airport's, **Larry Krauter** will replace the retiring **Candace McGraw**, as its CEO in March 2025. McGraw has been at CVG for 15 years and overseen a number of big developments at the airport, including the construction of an Amazon Air Hub there and its broader expansion to the sixth-largest cargo airport in the USA.

Susan Margles will take up the role of president and CEO of the Ottawa International Airport in January 2025. She succeeds Mark Laroche who announced his retirement in May after 12 years as head of the airport.

Newcastle Airport in Australia has announced that **Andrew Warrender** will serve as its interim CEO from next year until a permanent replacement is found for outgoing CEO, **Dr Peter Cock**, who has completed his decade of service to the airport and region. Warrender will temporarily step up from his current position as the airport's executive manager for aviation and air freight business development.

Tampa International Airport has decided to recruit from within and appoint **Michael Stephens** its next chief executive. He will replace the retiring **Joe Lopano**. Stephens currently serves as TPA's executive vice president and general counsel and will assume the role sometime after Lopano's last day in April 2025.

About the authors

Terri Morrissey and Dr Richard Plenty run ACI's Human Resources training. They received a Presidential Citation from the American Psychological Association in June 2022 for their leadership in advancing global psychology. Contact them at info@thisis.eu

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