INTERNATIONAL AIR TRANSPORT ASSOCIATION

ANNUAL REVIEW 2025

IATA

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IATA

International Air Transport Association Annual Review 2025

81st Annual General Meeting and World Air Transport Summit, Delhi, India

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MNG Airlines
Myanmar Airways International
Myanmar National Airlines

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National Airlines
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Neos
Nesma Airlines
New Pacific Airlines
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Nok Air
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Nouvelair

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Olympic Air
Oman Air
Overland Airways

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PAL Express
Paranair
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PGA Portugalia Airlines
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Xiamen Airlines

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YTO Cargo Airlines

DEDICATED TO DELIVERING SERVICES

Airlines delivered a combined net profit of $32.4 billion in 2024, with a net margin of 3.4%. By almost all parameters, the industry recovered all ground lost during the pandemic. This includes passenger numbers which reached a new high of 4.8 billion. Importantly, in parallel with the industry's return to growth, the accident rate improved when compared with the five-year average.

This solid industry performance is a fitting tribute to the pioneers who established our association some eight decades ago in 1945. Their vision was for IATA to promote safe, regular and economical transport for the benefit of the peoples of the world. And we have delivered.

Air transport is safer than ever. It is more accessible than ever—both economically and geographically. And we have a firm commitment to achieve net zero carbon emissions by 2050.

Safety

In 2024 there were seven fatal accidents among 40.6 million flights, and 244 fatalities among 4.8 billion passengers. Our aim, however, is a future of zero accidents and zero fatalities.

The flagship IATA Operational Safety Audit (IOSA) continued to prove its worth. The accident rate for airlines on the registry was 0.92 accidents for every one million flights, significantly better than the 1.70 accidents per million flights reported for non-IOSA airlines.

The IATA Global Aviation Data Management (GADM), Turbulence Aware, and all our audit

programs are generating data that is key to further safety improvements. In 2024, GADM alone collected data covering over 8 million flights, 500,000 incidents, and $11 billion in maintenance costs. With artificial intelligence, each new piece of data or information collected carries even more potential to make flying even safer.

Some priority areas for improvement are with governments. The number of final accident reports published is still far from the 100% needed. As conflict zones proliferate, governments must get better at sharing information to keep civil aviation out of harm's way. And, in a related matter, the sharp rise in Global Navigation Satellite System (GNSS) interference with civil aircraft navigating near conflict zones must not be allowed to compromise safety. In particular, ground-based navigation must be maintained for critical redundancy.

Affordability

More people than ever are flying, with passenger numbers coming ever closer to the five billion mark. In real terms, air fares (including ancillaries) are 40% lower than they were a decade ago.

Future affordability could be compromised by supply chain challenges that are deeply affecting airline fleet plans. Aircraft are not being delivered as promised, lowering the fleet replacement rate to 3% from the normal 5%-6%.

Moreover, engine issues have reduced the availability of the current fleet. Some 3.8% of the fleet under 10 years of age is in storage largely due to engine issues—nearly three times the pre-pandemic norm of 1.3%.

Manufacturers are estimating that it could take to the end of the decade to normalize their supply chains—a timeline that no airline can accept given the significantly higher operating costs, limitations on growth and reduced environmental performance for which the supply chain difficulties are responsible.

Although many governments around the world are investing to gain the significant benefits of aviation, Europe is a particular challenge. The Draghi report on European competitiveness highlighted the urgent need to improve. But little improvement can be seen, which comes at a cost for both consumers and Europe's competitiveness.

Reform to its EU261 passenger rights regulation appears to be hijacked yet again by narrow political interests. It remains a €5 billion drag on Europe's competitiveness, without affecting any gain in operational reliability. A more sensible approach was taken by Australia, which concluded that airline passenger protections could be delivered under the country's general consumer protections. It is hoped that this good example can provide a positive alternative to jurisdictions like the United States and Canada which are pursuing a copy-paste approach of the flawed EU261.

The Single European Sky 2+ package also fell victim to similar narrow political considerations. Inefficient air traffic management is a further drag on the continent's competitiveness that also impacts its environmental performance.

There is better news on the digitalization of industry processes. The advancement of Digital Identity for passenger travel and

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WILLIE WALSH, DIRECTOR GENERAL

ONE Record for air cargo could both deliver significant gains in efficiency that consumers would deeply appreciate.

Sustainability

Although airlines remain determined to achieve net zero carbon emissions by 2050, progress toward that goal by governments and supply chain partners has been disappointing.

In addition to supply chain issues which are holding back re-fleeting, the commitment of manufacturers to deliver alternative forms of propulsion in the mid-term, particularly hydrogen, has softened.

Although sustainable aviation fuel (SAF) production is expected to double to 2 million tonnes in 2025, it will still only be 0.7% of industry needs—and far from being able to deliver the expected 65% of carbon mitigation needed by 2050. Government mandates have failed to incentivize SAF production, raising prices instead.

Weakened support for the Carbon Offsetting and Reduction Scheme for International Aviation, or CORSIA, as the global economic measure to support decarbonization has already created the opportunity for several governments to introduce or raise environmental taxes over the past year. The rare exception was Sweden, which abandoned an environmental tax after seeing its economic damage.

We have 25 years to decarbonize aviation with an expected price tag of $4.7 trillion. With such high stakes, 2025 must see a major acceleration of progress by all concerned.

In preparation, IATA continues to ready the needed infrastructure and global standards to transparently track progress and support a functioning SAF marketplace. With respect to the latter, IATA's establishment of the Civil Aviation Decarbonization Organization (CADO) to manage the SAF registry is a critical step forward. It complements the IATA SAF Accounting and Reporting Methodology, the SAF Matchmaker and other programs.

IATA

IATA marks its first 80 years with continued dedication to its mission to represent, lead and service the airline industry. Evidence of this is the safe handling of $471 billion of industry money through the IATA Financial Settlement Systems. It is a flagship of services IATA offers to support the industry in critical processes that touch every aspect of the industry, from essential coding to passenger standards, data insights, facilitation, and much more.

The IATA team is passionate about the amazing role of airlines at the center of a value chain that supports 3.9% of global GDP and 86.5 million jobs. As we look to the future, we are fully committed to delivering the standards, advocacy and services that will take flying to even greater heights.

We do that with great thanks to the strong support of our 350 member airlines and appreciation for the guidance of our Board of Governors. In particular, the strong leadership of Pieter Elbers as Board Chair has skillfully guided us through many critical decisions and positioned IATA to be an even more relevant force in global aviation.

ADAPTING TO AN EVER-CHANGING WORLD

Q In 2024, what were the main topics of discussion for the Board of Governors?

There were many topics, but one topic we always discuss is the foundational mission of the association to represent, lead, and serve the industry. There are some elements that may not always get the public attention they perhaps deserve, such as the financial settlement systems, safety standards, operational procedures, and global harmonization. These remain very important. The aviation ecosystem has benefited a lot from these elements, and they are something we should always keep an eye on.

Clearly, there were also more contemporary topics to discuss, including sustainability, supply chain challenges, and the rising costs facing the industry. They were not specific to my tenure, but they are important issues that haven't gone away.

And last, but not least, there was the need for continuous change at IATA. The organization and structure must be relevant in an ever-changing world.

IATA has been working hard for the industry for 80 years. It is a deeply rooted association and has an equally deep knowledge of the industry. The original objectives of IATA are still relevant. There is still a lot to be done on standardization and, importantly, on advocacy.

But the world is very different to just a decade ago, and you must ask how the organization has adapted. Look at the growth of China, India, and other countries. How do you integrate these seismic changes into your organization? The Board of Governors applauds

IATA's leadership for making the necessary changes to date, but it is an ongoing process.

Q Regarding sustainability, is the industry getting the support it needs from partners and policymakers?

Sustainability is an important topic, but it is not something that can be achieved by a single entity or airline. It will take the entire ecosystem to get to net zero carbon emissions.

Looking at sustainable aviation fuel (SAF), for example, the producers have to provide adequate volumes; the airport infrastructure has to be in place; and policymakers have to ensure that regulations are realistic, financially doable, and feasible.

In a global business, there must be a global focus and global standards. A lot of work has been done, and the industry is getting support in certain aspects or in certain regions. But there is still a long road ahead.

Q Are you confident that we will reach net-zero carbon emissions by 2050?

If we continue on today's track, the chances are that this will not be achieved, especially if you consider where we are right now with SAF production and technological implementation.

But, having said that, just look at the efforts and advancements being made. This is such an innovative industry that we will surely accelerate sustainable initiatives and sustainable ways of flying.

If you go back 25 years, did we know about the state of technology today and all the advancements made? I think not. So, if we look ahead 25 years to 2050, I am very optimistic that all players—the airlines, manufacturers, SAF producers, and other dynamics still unknown to us today—will come up with some great solutions that will get us to net zero.

"I am very optimistic that all players—the airlines, manufacturers, SAF producers, and other dynamics still unknown to us today—will come up with some great solutions that will get us to net zero."

PIETER ELBERS, CHAIR, IATA BOARD OF GOVERNORS AND CEO, INDIGO

Q What opportunities and challenges are on the horizon?

Aviation has bounced back from the COVID pandemic, probably faster than anybody anticipated. Today's reality is that all markets in the world have recovered, and some are significantly above the level where they were in 2019. That puts a lot of pressure on the supply chain. And that is one of the challenges in the foreseeable future.

And then there is sustainability, which will remain a focus for many years to come. Diversity is a part of this. We have IATA's 25by2025 initiative, and we need to look at what we have achieved, what we can be proud of, the lessons learnt, and the immediate next steps.

Of course, I would again mention India as a great example of the opportunities on offer and of the great benefits that aviation can bring to an economy. India has started its aviation boom. In 2024, IndiGo welcomed 113 million passengers compared with 75 million passengers pre-COVID. We have added 38 million passengers, which is the size of a respectable airline. That gives you an indication of the burgeoning aviation market in India.

And this is why it is such a great location for the 2025 IATA AGM. Aviation is a force for good in the country. India connects different parts of the world and diverse communities and is a great platform for all the benefits of aviation. So, when we talk about growing economic development, fostering trade, mobility, connecting families and friends, and boosting prosperity, you see it all playing out in India.

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Q Are there any issues not getting the attention they deserve?

The rising cost level is one, especially at airports and the manufacturers. Everybody took a hit during COVID, especially the airlines. We have seen a phenomenal recovery, but the rush for capacity has come at a cost.

When this normalizes, airlines shouldn't be confronted with a higher structural cost level. Higher costs can't be the new normal. This is vital going forward. There are a lot of efficiencies still to be realized, and we need to make sure the entire industry, including airlines, is on a sustainable trajectory.

Q What value does IndiGo derive from being an IATA member?

IndiGo is only 18 years young. We didn't join IATA right from the start but became a member in 2019. IndiGo was changing and beginning

"A link with a global association is a logical step if you're growing your business."

its international ambitions. That made IATA important.

Global standards are essential to international operations but equally crucial domestically for so many reasons. If you want to be part of the conversation surrounding these aspects, then you should join IATA.

Then you look at IATA's advocacy efforts on the global stage. Some 30% of IndiGo's business (in available seat kilometers) is international. It was just 10% a couple of years ago.

A link with a global association is a logical step if you're growing your business and want to ensure that you can voice an opinion on, or comply with, global standards.

Q How proud are you to be hosting the IATA Annual General Meeting?

It's very exciting for India to be hosting the IATA AGM again after 42 years. India and the world have changed a lot since 1983, and this is the right time for the country—and IndiGo—to host the event in New Delhi.

India's domestic aviation industry is experiencing rapid growth and is now world's third-largest domestic aviation market. IndiGo carries a million passengers every three days, a significant portion of whom are first-time fliers. India is soaring, and so is IndiGo!

Aviation is a force for good—we clearly see this happening on a daily basis in India—and therefore India and IndiGo are very excited to host this year's AGM and look forward to welcoming the global aviation community to this great country.

MEMBERSHIP OF THE BOARD OF GOVERNORS

As of 12 March 2025

Pieter Elbers
[Chair of the Board]
Chief Executive Officer
INDIGO

Michael Rousseau
President and Chief Executive Officer
AIR CANADA

Benjamin Smith
Chief Executive Officer
AIR FRANCE-KLM GROUP (representing Air France)

Campbell Wilson
Chief Executive Officer and Managing Director
AIR INDIA

Robert Isom
Chief Executive Officer
AMERICAN AIRLINES

Shinichi Inoue
President and Chief Executive Officer
ANA

Michael Steen
President and Chief Executive Officer
ATLAS AIR

Patrick Healy
Chair
CATHAY PACIFIC

Pedro Heilbron
Chief Executive Officer
COPA AIRLINES

Jasmin Bajić
President and Chief Executive Officer
CROATIA AIRLINES

Mesfin Tasew Bekele
Chief Executive Officer
ETHIOPIAN AIRLINES

Richard Smith
President and Chief Executive Officer, Airline and International
FEDEX

Zhu Tao
Chairman
HAINAN AIRLINES

Luis Gallego Martín
Chief Executive Officer
IAG (representing IBERIA)

Mitsuko Tottori
Representative Director, President and Chief Executive Officer
JAPAN AIRLINES

Marjan Rintel
President and Chief Executive Officer
KLM

Walter Cho
Chairman and Chief Executive Officer
KOREAN AIR

Roberto Alvo
Chief Executive Officer
LATAM AIRLINES GROUP

Carsten Spohr
Chairman and Chief Executive Officer
LUFTHANSA GROUP (representing Lufthansa)

Izham Ismail
Group Chief Executive Officer
MALAYSIA AIRLINES

Munkhtamir Batbayar
President and Chief Executive Officer
MIAT MONGOLIAN AIRLINES

Mohamad El-Hout
Chairman and Director General
MIDDLE EAST AIRLINES

Mehmet Tevfik Nane
Chairperson of the Board of Directors
PEGASUS AIRLINES

Badr Mohammed Al-Meer
Group Chief Executive Officer
QATAR AIRWAYS

Abdelhamid Addou
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Yvonne Manzi Makolo
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Ibrahim Al-Omar
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SAUDI ARABIAN AIRLINES

Ahmet Bolat
Chairman of the Board of Directors and Executive Committee
TURKISH AIRLINES

Scott Kirby
Chief Executive Officer
UNITED AIRLINES

Enrique Javier Beltranena Mejicano
President and Chief Executive Officer
VOLARIS

Willie Walsh
Director General
IATA

ALSO SERVED
(To 18 September 2024)
Peter Ingram
President and Chief Executive Officer
HAWAIIAN AIRLINES

STRONG ECONOMIC PERFORMANCE

MACROECONOMIC ENVIRONMENT

Good growth coupled with lower oil prices

01 Global air transportation continued to grow in 2024, supported by a resilient world economy that navigated the challenges of tightening monetary policy that saw interest rates peak in 2023. The global economy recorded GDP growth of 3%, which aligns with the long-term average. Inflationary pressures remained persistent in some economies and were compounded by elevated geopolitical and economic uncertainties. Easing monetary policy and declining oil prices supported the global economy and air transportation in the second half of 2024.

Among major economies, the United States concluded 2024 with annual GDP growth of 2.8%, a slight decrease from 2.9% in 2023. The European Union's GDP growth was more subdued, at 1.1%, while China's reached its 5.0% target, bolstered by a stronger-than-anticipated performance in the fourth quarter. India's 2024 GDP growth rose to 8.2%, up from 7% the previous year, a pace that is likely to moderate going forward.

Global gross domestic product (constant $), annual % change

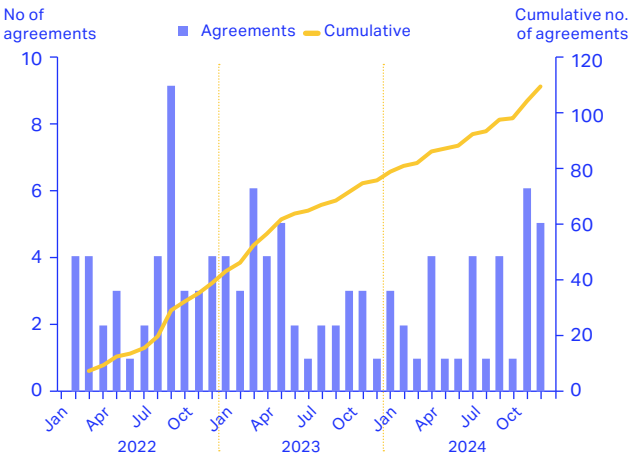
Sources: IATA Sustainability & Economics, using data from MacroBond.

The energy transition

02 As part of their decarbonization efforts toward net zero targets, airlines have continued to sign sustainable aviation fuel (SAF) offtake agreements. These agreements also support the development of SAF production facilities and reduce investment risk. Between 2022 and March 2025, the aviation sector signed 124 offtake agreements, including 86 binding and 30 nonbinding purchase commitments. Hydro-processed esters and fatty acids (HEFA) and HEFA coprocessing dominate offtake agreements, accounting for 64% of the total.

Although SAF production doubled in 2024 compared with 2023, the scale-up is woefully insufficient to satisfy demand. In 2024, SAF supply represented a mere 0.3% of all air transport fuel consumption. IATA estimates that a million tonnes of SAF was produced in 2024 and that it sold at an average price of $2,316 per tonne. This price is 3.1 times higher than that for conventional aviation fuel and added $1.6 billion to airlines' combined fuel bill in 2024. In IATA's estimate, SAF will increase to 0.7% of airlines' total fuel consumption in 2025 and will add $4.4 billion to the industry's fuel costs, assuming prevailing prices.

Sustainable aviation fuel (SAF) offtake agreements as of Dec24

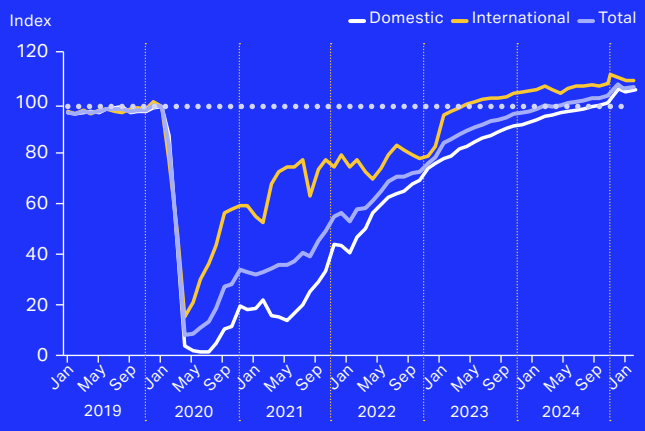


Sources: IATA Sustainability & Economics.

AIR PASSENGER MARKETS

03 In 2024, global air passenger traffic surged 10.6% year on year (YoY), propelled by a recovery from the COVID pandemic, strong demand in key regions, and robust growth in emerging markets. Although demand continues to rise in tandem with the long-term growth rate, its pace is decelerating compared with its peaks in the aftermath of the pandemic.

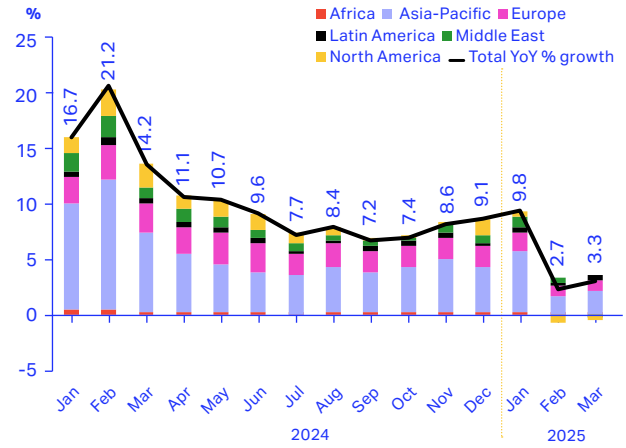
Seasonally adjusted industry revenue passenger kilometers (RPK), indexed to Jan 2020 = 100



Sources: IATA Sustainability & Economics, using data from IATA information, including from IATA Monthly Statistics.

04 Airlines in Asia-Pacific and Europe were the largest contributors to industry-wide passenger traffic growth, accounting for over 74% of the net increase in revenue passenger kilometers (RPK) for the year. This growth was driven primarily by an increase in international traffic in both regions and by significant expansion in the largest domestic markets of Asia-Pacific, the last of the world's regions to recover from the pandemic. Global annual passenger growth has continued to decelerate this year, with year-to-date (YTD) data for March 2025 indicating a 5% growth rate.

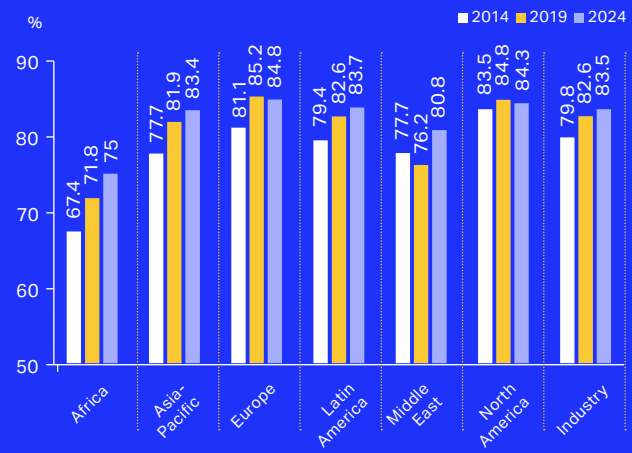
Regional RPK growth, %



Sources: IATA Sustainability & Economics, using data from IATA information, including from IATA Monthly Statistics.

05 Industry-wide airline seat capacity, measured in available seat kilometers (ASK), grew 8.8% in 2024 but was outpaced by passenger demand. As a result, the passenger load factor (PLF) reached an all-time high of 83.5%. This trend is consistent with the upward trajectory of PLF over the past decade and with supply chain constraints. Airlines in most regions experienced higher load factors compared with 5 and 10 years ago, though European and North American carriers fell slightly short of their 2019 load factors in 2024.

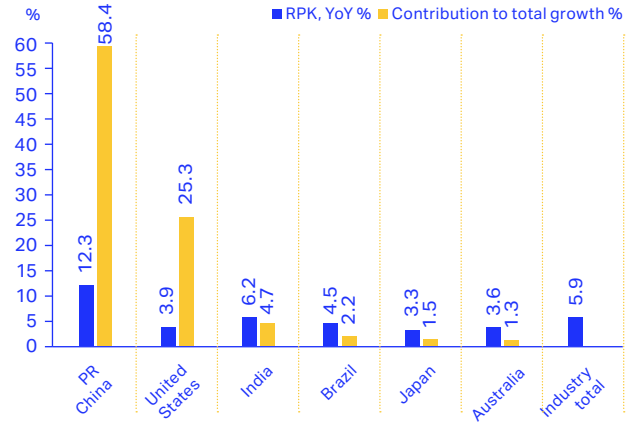
Industry-adjusted regional passenger load factors (PLF), % share of available seat kilometers (ASK)



Sources: IATA Sustainability & Economics, using data from IATA information, including from IATA Monthly Statistics.

06 Domestic market RPK increased 5.9% YoY, with China leading at 12.3%. China's surge contributed 58.4% of the net increase in domestic RPK. The US market ranked second but grew modestly, at 3.9% YoY. India's traffic grew 6.2% YoY to rank third in contribution to the industry's RPK growth. Overall, all major domestic markets are evolving in line with the growth trend of the past decade.

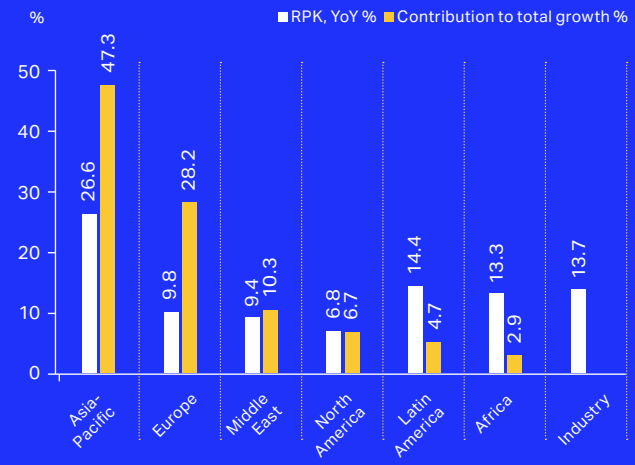
2024 Domestic RPK growth by country and by contribution to industry total RPK growth, %



Sources: IATA Sustainability & Economics, using data from IATA information, including from IATA Monthly Statistics.

07 Global international air traffic in 2024 surged 13.7% YoY. Carriers in Asia-Pacific led the way with an increase of 26.6% YoY, contributing nearly half of the global growth. The heightened percentage for Asia-Pacific airlines highlights the high growth post-pandemic and the robust traffic within Asia-Pacific and from it to other major destinations, such as Europe and the Middle East. European carrier RPK, meanwhile, rose 9.8% YoY, bolstered by robust performances in western European markets and by rapid expansion in eastern and central Europe. International air traffic in the Middle East gained 9.4% YoY despite regional conflicts and was driven mainly by the strong performance of Gulf-based airlines.

2024 International RPK growth and contributions to industry total RPK growth

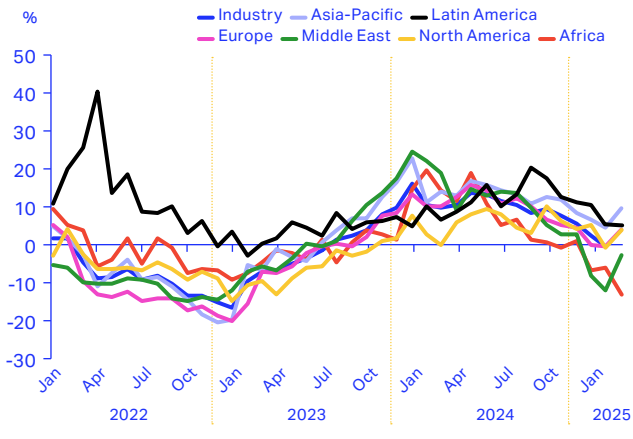


Sources: IATA Sustainability & Economics, using data from IATA information, including from IATA Monthly Statistics.

AIR CARGO MARKETS

08 Air cargo demand, measured in cargo tonne kilometers (CTK), grew 11.3% in 2024, hitting an all-time high that exceeded by 0.6% the previous high set in 2021. The increase in air cargo demand spanned all regions and months throughout the year. Monthly growth, however, did slow, decreasing from double to single digits as the year progressed. On an annual basis, Asia-Pacific led air cargo demand, with a 14.6% increase in CTK, followed closely by the Middle East, at 13.0%, and by Latin America, at 12.8%. North America, the world's second-largest market, saw more modest growth in CTK of 6.5% YoY. Like passenger traffic, air cargo is experiencing more modest growth in 2025, with YTD data for March 2025 showing a 2.4% increase.

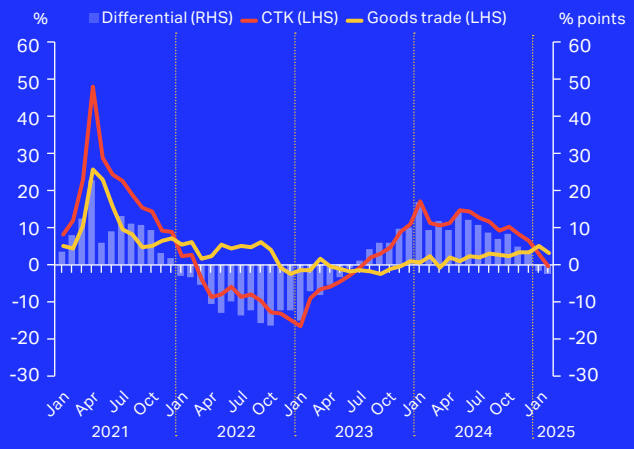
Growth in air cargo demand based on cargo tonne kilometers (CTK), % YoY



Sources: IATA Sustainability & Economics, using data from IATA information, including from IATA Monthly Statistics.

09 In 2024, air freight captured a significant share of global trade growth. The increase in air cargo surpassed that in global goods trade as tracked by the CPB Netherlands Bureau for Economic Policy Analysis World Trade Monitor. The demand for rapid deliveries, particularly in the e-commerce sector, improved air cargo's competitiveness against maritime shipping rates, and the Red Sea crisis forced businesses to enhance inventory levels. As a result, the need for quick restocking brought air transportation to the fore, emphasizing its crucial role in modern, time-sensitive logistics.

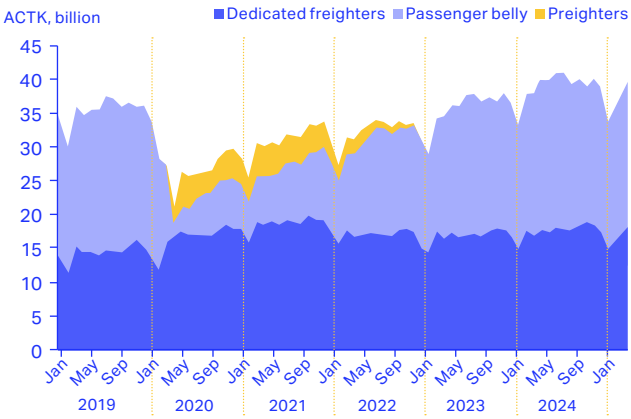
Growth in air cargo demand (CTK) and global goods trade, % YoY



Sources: IATA Sustainability & Economics, using data from IATA information, including from IATA Monthly Statistics, and data from Netherlands CPB.

10 Resourcefulness in the face of scarcity defined the air cargo sector in 2024. The demand for air cargo outpaced capacity, prompting the industry to maximize every capacity slot. Passenger aircraft belly cargo capacity for international flights hit a peak in 2024, carrying 54.6% of all cargo. Since April 2023, cargo transported in passenger aircraft bellies has exceeded the volume moved by dedicated freight aircraft.

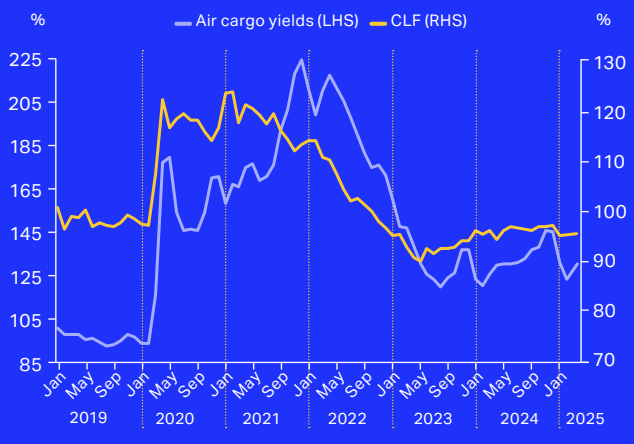
International available cargo tonne kilometers (ACTK) by type



Sources: IATA Sustainability & Economics, using data from IATA information, including from Monthly Statistics.

11 In seasonally adjusted terms, the industry's cargo load factors (CLF) reached 45.9% in 2024, up 1.6 percentage points from 2023. Another notable trend was the stabilization of air cargo yields, which dropped only 1.6% and amounted to $2.47 per kilogram, exceeding the 2019 yield by 35.0%. Disruptions in container shipping put extensive upward pressure on ocean shipping rates. Maritime rates did not reach the highs of 2021, but they nevertheless caused a sharp drop in air cargo rates, boosting the competitiveness of air cargo.

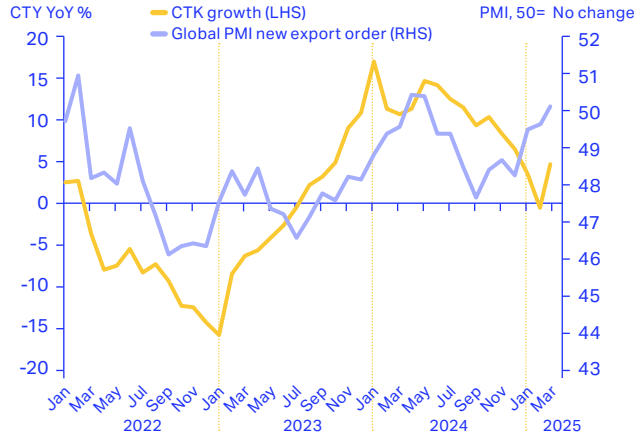
Global air cargo yields ($ per kg, incl. surcharges) and load factors, indexed Jan 2019 = 100, %



Sources: IATA Sustainability & Economics, using data from IATA information, including from Monthly Statistics and CargoIS.

12 Purchasing managers' indices (PMIs) are measures of activity in the global economy that offer insights into the performance of the private sector. One category of PMIs are global new export orders, often a leading indicator of air cargo activity. In 2024, the new export orders PMI averaged 49.0, an increase from 47.6 in 2023. This is still below the 50 that is the cutoff mark between majority positive or negative responses, but for the first time since 2022 this threshold was exceeded, in the months of April and May 2024. Although trade sentiment remained cautious in 2024, air cargo experienced significant growth, with monthly YoY increases of between 6.0% and 17.0%.

Global manufacturing new export orders purchasing managers' index (PMI) and air cargo demand (CTK) growth



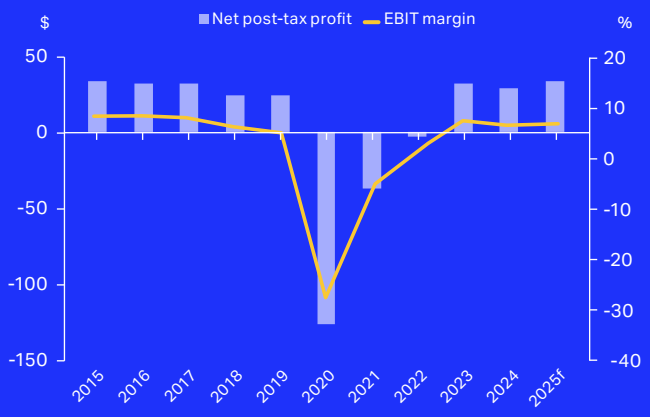
Sources: IATA Sustainability & Economics, using data from IATA information, including from Monthly Statistics, and data from IHS Markit.

AIRLINE FINANCIAL PERFORMANCE

Airlines performed well despite declining yields and significant cost pressures

13 The air transport industry reported strong sales growth in 2024 relative to recent years, but its profitability was diminished by rising nonfuel costs and persistent supply chain issues. Airlines faced wage increases and higher operating costs, some of them attributable to the longer routes imposed by airspace restrictions. Aircraft delivery delays also had a major impact, increasing the average fleet age and adding to maintenance costs. Airlines' net profits reached $32.4 billion in 2024, with earnings before interest and taxes (EBIT) margin of 6.4%.

Airline net profit, $ billion and earnings before interest and taxes (EBIT) operating profit margin, %

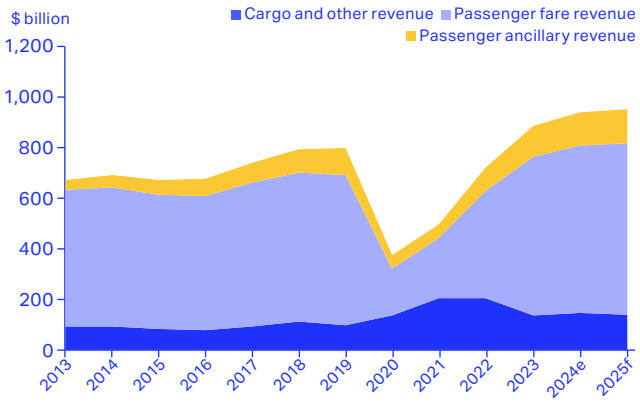


Sources: IATA Sustainability & Economics and Airfinance Global.

Passenger and ancillary revenue delivered most of the growth

14 Industry-wide revenue in 2024 is estimated at $966 billion, up 6.2% YoY. Nearly 60% of the top-line revenue growth came from passenger and ancillary revenue. Yields declined, but passenger revenue (including ancilliary revenue) grew 6.0% YoY, to a record $817.0 billion, driven by strong traffic growth of 10.6%. The top line was also bolstered by cargo revenue, which performed well in 2024, gaining 7.2% YoY. This increase is attributable to a decline in the prices of air cargo versus ocean freight and to delays in maritime transport caused by the Red Sea crisis. Air cargo also benefited from robust demand in Asian e-commerce.

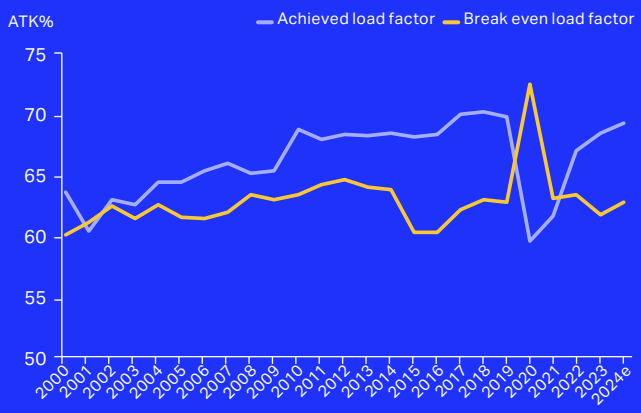
Revenue split, $ billions



Sources: IATA Sustainability & Economics and Airfinance Global.

15 Supply chain issues and delays in aircraft deliveries prevented airlines from achieving their growth targets. However, with demand for air travel growing faster than supply, industry-wide load factors reached an all-time high of 83.5% and helped protect fragile margins from decline.

Breakeven versus achieved load factor



Sources: IATA Sustainability & Economics and Airfinance Global.

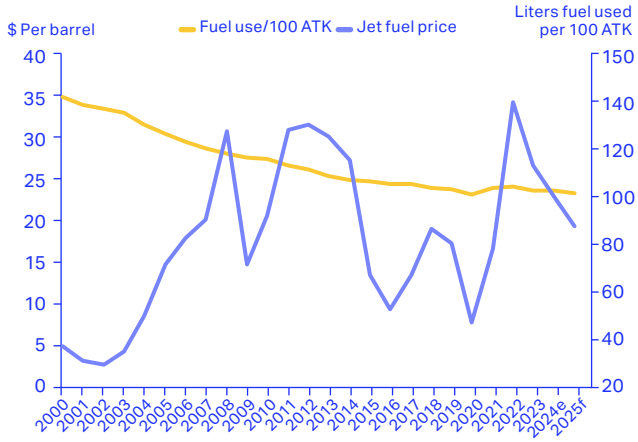
Costs

16 Costs have risen across all nonfuel areas. Following high inflation and profit recovery in 2023, airlines faced demands for salary increases amid persistent labor shortages. Other costs were affected by supply chain issues.

Engine-related aircraft groundings, parts shortages, and an aging global fleet, meanwhile, drove up maintenance costs. In 2024, the average age of the global commercial fleet was 14.8 years, the highest on record. An old fleet leads to more and higher maintenance costs, higher fuel consumption, and higher capital expenditure for unplanned retrofits of aircraft originally scheduled for retirement. Aircraft ownership costs, too, rose sharply, the result of earlier interest rate increases coming into play and a significant rebound in leasing costs.

Fuel costs decreased amid the downward trend in global oil prices, which accelerated in the second half of 2024. Brent crude oil prices fell to levels not seen since before the outbreak of hostilities in Ukraine in February 2022. The crack spread also narrowed, such that jet fuel prices closed out 2024 at an average $99 a barrel, a 12.0% drop from a year earlier.

Fuel efficiency and jet fuel prices, liters per 100 available tonne kilometers (ATK) and $ a barrel



Sources: IATA Sustainability & Economics, using data from Platts.

Net profit and regions

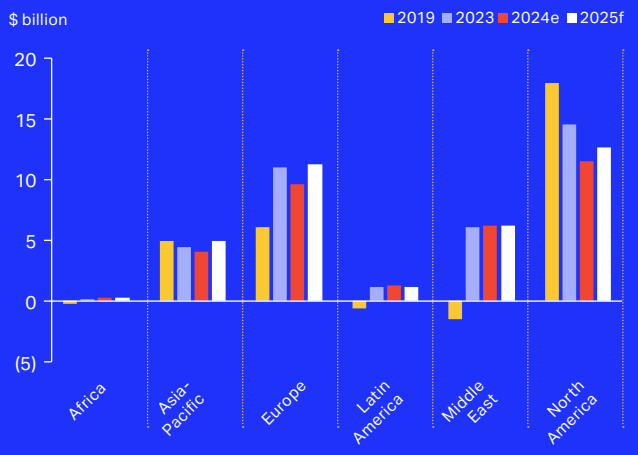
17 Air transport operations in all the world's regions generated profit in 2024, but not all regional operations saw profits improve. Airlines in Asia-Pacific, Latin America, and Africa reported marginal increases in net profits, whereas those in other regions recorded declines in profitability compared with 2023. Airline operations in the mature markets of North America and Europe, meanwhile, still account for over two-thirds of the industry's net profit.

Airlines in Europe faced several challenges in 2024, including rising wages, fleet groundings, noise-related flight restrictions, and higher airport charges and national taxes. Europe's economic growth, moreover, has been sluggish, lagging that of the United States and China. The ongoing war in Ukraine also has affected air transport in various ways. Twenty percent of European airspace has been closed and Russian airspace overflight rights withdrawn for most Western airlines, requiring the rerouting of long-haul flights to Asia. Industry net profits in Europe thus decreased slightly from a year earlier, to $9.6 billion in 2024, representing a net margin of 3.8%.

North American airlines led industry-wide net profits, albeit below their 2019 level. This reduced profitability is mainly attributable to the low-cost carrier (LCC) segment, which was hit by fleet groundings and delayed aircraft deliveries. Airline net profits in North America reached $11.5 billion in 2024, a net profit margin of 3.5%.

In Asia-Pacific, airlines experienced RPK growth of 17.3%, and the industry benefited from relaxations in visa requirements for several Asian countries. The region's airlines, however, faced financial challenges because of overcapacity in China and a low number of flights to the United States. And following a substantial recovery in yields in 2023, airfares in Asia-Pacific fell at the fastest pace in the world in 2024. Airline net profit for the region is estimated at $4.0 billion, a 1.6% net profit margin.

Airline net profits by region, $ billion



Sources: IATA Sustainability & Economics and Airfinance Global.

The financial performance of airlines in the Middle East was solid in 2024, with a net profit of $6.1 billion and a 8.9% net profit margin. Middle Eastern carriers established their global presence a decade ago, but it is only in recent years that they have become profitable. They have benefited from the region's robust economy and investment along with the closure of Russian airspace to European airlines. The region's airlines, moreover, enjoy some of the lowest jet fuel prices in the world and operate a lucrative long-haul network with a high proportion of premium fares.

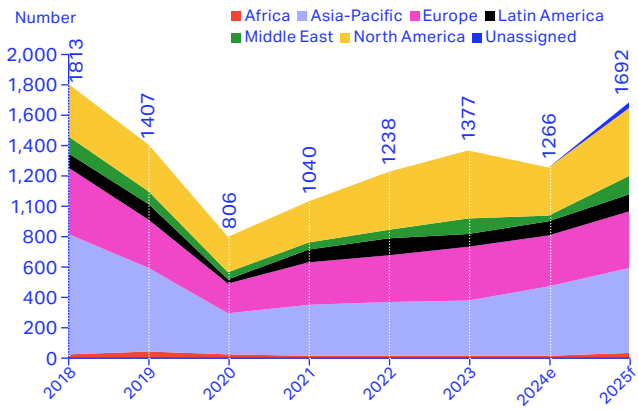
Airlines in Latin America and Africa contribute only modestly to the industry's bottom line. However, there is a steady improvement in their financial performance. They generated profits of $1.3 billion and $0.2 billion, respectively, in 2024 and have an outlook of further growth.

Aircraft deliveries

18 Aircraft deliveries in 2024 fell short of expectations and remained far from peak deliveries in 2018. Only 1,266 aircraft were delivered in 2024, a 8.1% drop from 2023.

In 2025, 1,692 aircraft are expected to be delivered. Although this would mark the highest level since 2018, it is almost 26% lower than estimates made a year ago for 2025 and further downward revisions are likely. Overall supply chain issues are expected to persist in 2025 and beyond.

Aircraft deliveries by region

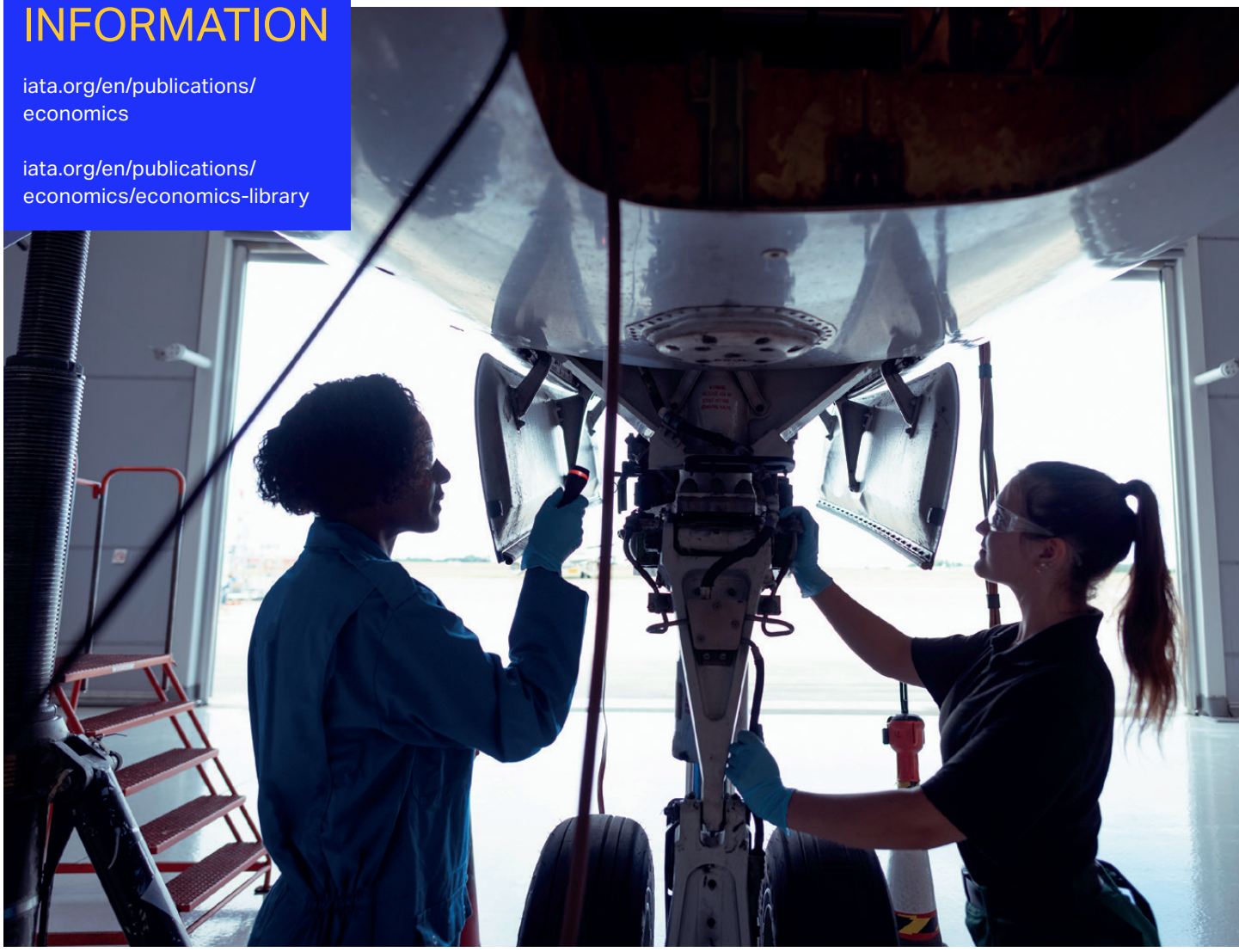


Sources: IATA Sustainability & Economics, using data from Cirium.

FURTHER INFORMATION

iata.org/en/publications/economics

iata.org/en/publications/economics/economics-library



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FLYING TOWARD NET ZERO CARBON EMISSIONS

Reaching net-zero CO2 carbon emissions by 2050 is a critical challenge for aviation, its value chain, and its stakeholders. Airlines alone, however, cannot bear the burden of the trillions of dollars required to achieve this existential goal or, indeed, provide the solutions to achieve it. Manufacturers, fuel producers, governments, and other industry stakeholders share the same goal for 2050. So it was disappointing that in 2024 many stakeholders did not contribute with the urgency needed toward its achievement.

Air transport continues to face complex challenges. They include the necessity of scaling up the production and use of sustainable aviation fuels (SAF), advancing alternative power sources, and developing supportive regulatory frameworks.

Despite the challenges, aviation's efforts to improve the sustainability of the environment and the industry, have been noticed. According to IATA polling conducted in October 2024 of 6,500 respondents across 15 markets

- **76%** believe aviation is proactive on climate change mitigation,
- **81%** say aviation is committed to fulfilling its climate change goals,
- **77%** believe aviation leaders are taking climate change seriously, and
- **72%** understand how aviation will tackle its climate challenges.

Net-Zero roadmaps

In September 2024, IATA released updated Policy and Finance Net-Zero Roadmaps that offer expanded and deepened analyses of the journey to net zero. The roadmaps reaffirm that the cost of achieving decarbonization

by 2050, while enormous, at $4.7 trillion, is within reach. They emphasize, however, the urgent and essential need for more robust collaboration on financing and on pursuing this goal from all industry stakeholders and especially from policymakers.

Success depends on the establishment of transparent, supportive policy and financial frameworks that align with aviation's specific requirements and with the transformative shifts in the global economy. IATA's roadmaps conclude as follows:

- The air transport industry's energy transition is feasible within the 2050 horizon.
- The amount of investment needed to make that possible can be favorably compared with that establishing earlier renewable energy markets, such as wind and solar.
- The success of aviation's energy transition requires a unity of purpose among policymakers.
- The time pressure is evident, with every action delayed an opportunity missed.

IATA's Finance Net-Zero Roadmap details the investments required for aviation to reach net-zero CO2 emissions by 2050. It also cites the costs to airlines for procuring sustainable solutions.

- **Required Average Annual Investments.** For air transport to reach net zero by 2050, the annual average capital expenditure to build biorefineries over a 30-year period is about $128 billion a year, at best. This is significantly less than the estimated cost to establish the solar and wind energy markets, at $280 billion a year between 2004 and 2022. Aviation's aim for net zero by 2050, would be helped if governments redirected subsidies from fossil fuel to renewable energy production, of which SAF is just one type of product.
- **Annual Transition Cost.** In IATA's estimate, SAF will increase to 0.6% of airlines' fuel consumption in 2025 and add $3.8 billion to their fuel costs, assuming prevailing prices. In 2050, the transition cost to reach net zero could be as high as $744 billion, based on IATA's analysis. These numbers highlight the need for speed and scale in bringing solutions to market so that the industry can realize its goal of net-zero CO2 emissions.

© Porvoo refinery in Finland. Neste

Environmental mitigation

Fundamental to the industry's strategy to decarbonize is its transition from jet kerosene to SAF. SAF is expected to represent up to 65% of the carbon abatement needed to reach net-zero CO2 emissions by 2050. In 2024, SAF production doubled, from 0.5 million tonnes in 2023 to 1 million tonnes, accounting for 0.3% of global jet fuel production and 11.0% of global renewable fuels. This increase in production was, however, below the 1.5 million tonnes anticipated because principal SAF production facilities in the United States postponed an expected production ramp up.

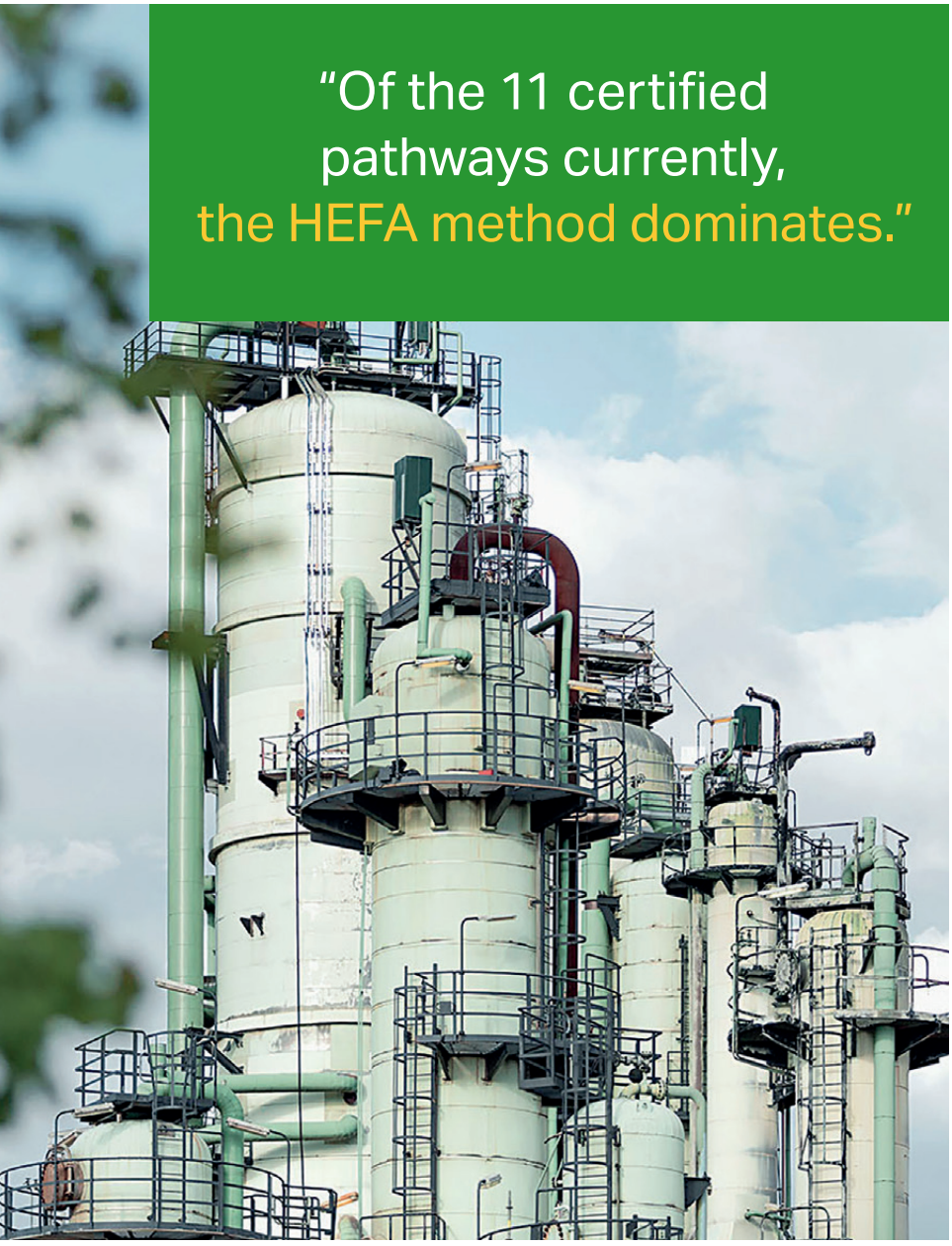
SAF production could be accelerated through policy incentives, increased coprocessing, and the development of a global marketplace not dependent on the location of production. The recognition and use of the SAF Registry as part of a global SAF accounting framework is critical in this regard.

IATA developed the SAF Registry and transferred it to the Civil Aviation Decarbonization Organization (CADO) for the registry's launch in April 2025. The SAF Registry allows airlines to book the environmental attributes of their SAF purchases and to claim these attributes against their obligations in a transparent manner that prevents double counting.

This book and claim approach is based on IATA's SAF Accounting and Reporting Methodology. It allows SAF to be produced where it makes sense and for airlines to purchase and claim SAF's environmental attributes regardless of where SAF is used.

The continued diversification of how SAF is produced is also important. Of the 11 certified pathways currently, the HEFA (hyrdo-processed esters and fatty acids) method dominates. Increased investment to develop and certify other pathways would boost SAF production volumes. This is particularly true of the alcohol-to-jet (AtJ) and the Fischer-Tropsch (FT) processes, which use biological and agricultural wastes and residue to manufacture SAF.

"Of the 11 certified pathways currently, the HEFA method dominates."



The production of power-to-liquid (PtL) fuel, or e-SAF, is an industry objective. The third Conference on Aviation Alternative Fuels (CAAF/3)'s assertion of "no nation left behind" in this regard makes collaboration essential. European expertise could be combined with Indian renewable power capacity, for example, so that e-SAF can be produced where it makes economic sense.

The European Union SAF mandate

A major development regarding SAF is the implementation of ReFuelEU Aviation (RFEUA). This EU regulation came into effect on 1 January 2025 and mandates a 2% SAF supply at major EU airports.

Unfortunately, the problems that IATA highlighted with the regulation are a reality.

What the regulation mandates requires a mature market. Lacking that, the prices that airlines pay for SAF have surged as its suppliers exploit their dominant market position. The high cost associated with the mandated uptake makes it more difficult for airlines to engage in the voluntary procurement of SAF. Moreover, entities considering market entry are wary of incumbents' market power.

SAF price hikes do not correspond to production or logistics cost increases, which leaves market power as the main cause of heightened SAF costs. In addition, fuel suppliers are imposing RFEUA compliance fees that are on average equivalent to twice the prevailing premium market price of SAF and more than four times the cost of conventional aviation fuel (CAF).

IATA estimates that European airlines will pay $2.9 billion extra for SAF cost and compliance in 2025 compared with the cost of buying CAF. Only half of this amount is justified by the additional cost of SAF.

Although the RFEUA's mandate is aimed at suppliers, airlines are handcuffed to the regulation because of the limited choice of fuel suppliers at EU airports. More than a third of the EU's airports have three or fewer fuel suppliers. Yet the RFEUA stipulates that airlines must uplift at least 90% of their fuel from the major EU airports annually.

The International Civil Aviation Organization Carbon Offsetting Reduction Scheme for International Aviation (CORSIA) and the EU Emissions Trading Scheme (ETS) provide incentives for airlines to procure SAF and claim back the associated emission reductions. But a lack of harmonization across these regulations significantly reduces their effectiveness.

IATA is pointing out the market realities of the RFEUA's mandate. It is supported in its call for incentives by the 2024 Draghi report on the future of European competitiveness, which laments Europe's lagging competitiveness globally.

Of concern is the possibility that suppliers will be fined for falling short of the mandate and that any fines will be added to the SAF price. Fines will be almost inevitable in 2030, when

SAF REGISTRY

The SAF Registry went live on 3 April 2025. It was devised by IATA and is managed by the newly established Civil Aviation Decarbonization Organization (CADO) and more than 50 other bodies, including airlines, fuel producers, and national authorities. The SAF Registry will facilitate the broadest-possible use of SAF in aviation's decarbonization efforts by recording SAF transactions in a standardized and transparent way. It also helps solve the challenge of limited SAF supply by connecting airlines with SAF producers and suppliers, regardless of their geographical location.

SAF certificates are issued after a SAF batch is registered and include product and environmental attribute information. This information results from the IATA SAF Accounting and Reporting Methodology, a feedstock-agnostic and technology-neutral framework that accounts for emission reductions for any given air transport activity, be it cargo or passenger.

The SAF Registry includes the ability to transfer SAF environmental attributes between parties. Airlines can either benefit directly from Scope 1 emissions reductions or allocate Scope 3 to their customers. The SAF registry, moreover, aims to facilitate environmental attribute claims under regulatory frameworks, such as the EU ETS or CORSIA and voluntary frameworks.

The SAF Registry also offers interoperability, and IATA has signed a collaboration agreement for the registry's use with two other registry providers, 123Carbon and 4Air. This will increase transparency in the market; avoid emissions reporting errors, including double issuance; and streamline certificate management across platforms.

a mandate for 1.2% e-SAF comes into force. Given that there is no e-SAF production or plans to develop such in Europe, fines in 2030 could, according to one report, total an eye-watering €8.3 billion ($9.5 billion).

IATA will continue to advocate for effective policies. But a review of ReFuelEU is not expected until 2027.

CORSIA

CORSIA is a pillar of the industry's net-zero commitment and is midway through its initial voluntary phase of reporting (2024–2026). Mandatory reporting starts in 2027 and a problem has emerged with the availability of the eligible emission units (EEU) that airlines will be required to purchase. Guyana is so far the only country where CORSIA EEU are available for sale.

IATA is holding quarterly events to accelerate the development of the market for CORSIA EEU. It is also encouraging countries to release more CORSIA EEUs and has produced guidelines to help countries through the required process. Despite these efforts, there remains a large gap between EEU supply and demand.

The hope is that as more EEU become available their price will drop. But IATA is highlighting the fees placed on top of the EEU unit price. The first is an insurance premium taken out by a host country in case of default and passed on to the airlines. IATA argues that the guidance it has produced in line with Article 6 of COP29 mitigates much of the risk.

Another of the fees is administrative. IATA agrees that some infrastructure cost is needed to facilitate EEU procurement, but it argues that fees should not exceed cost and that host countries already gain obvious benefits from project investments.

Net-Zero tracking

Air transport must track its progress to net zero, IATA released a net-zero tracking tool in late 2024. Using this tool, airlines can benchmark their efforts and generate reports on progress from an industry perspective.

Nearly 40 airlines are using the tool, and IATA aims to accelerate its usage in 2025. Airline users gain a standardized report, a benchmark report, and a ranking. Data is anonymized, but individual airlines will be able to gauge their standing.

IATA's net-zero tracking tool provides a credible bottom-up number for emissions reduction.

IATA CO2 Connect

The IATA CO2 Connect emissions calculator is yet another means by which airlines can track their emissions. IATA enhanced CO2 Connect in 2025 with its SAF Accounting and Reporting Methodology to account for carbon emissions reductions related to the use of SAF.

IATA CO2 Connect will apply equal per-passenger emission reductions across an airline's network, meaning that all flights will benefit from an equal (percentage) reduction based on total SAF purchases.

Future enhancements include the ability to allocate per-passenger SAF emission reductions to specific routes. CO2 Connect will thus provide the transparency and accuracy that individuals and corporations demand.

IATA CO2 Connect uses operational data, such as aircraft type–specific fuel consumption, provided directly by its contributing airlines. Input from each additional airline heightens the accuracy and transparency of IATA CO2 Connect for individual travelers and corporations.

New technologies
New technologies will likely have their greatest impact post-2050 but could play a role before then. Following extensive cooperation, in 2025 IATA partnered with other industry organizations and companies to produce a Concept of Operations (CONOPs) for hydrogen and electric-powered aircraft. This document dovetails with an ICAO panel's revisions of ICAO annexes, particularly Annex 14—Aerodromes.

Around 35 airlines have demonstrated the feasibility of hydrogen-powered flight through test projects. The validity of electric-powered flight, also has been well demonstrated, and electric battery–powered aircraft are benefiting from ever-greater energy output.

Infrastructure, though, must match technological development. Japan's Kansai International Airport is experimenting with hydrogen for its ground service equipment, France's Toulouse Airport has a hydrogen-powered passenger bus, and the Netherland's Rotterdam Airport is building a hydrogen fueling facility. The experience gained in handling hydrogen will be vital moving forward.

Analysis from the International Energy Agency suggests that hydrogen production is accelerating. But investment and a stable geopolitical environment remain essential. Also important is hydrogen's use in SAF production, with green hydrogen particularly relevant to e-SAF.

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"Future enhancements include the ability to allocate per-passenger SAF emission reductions to specific routes."

Roadmap reviews
IATA is reviewing its net-zero roadmaps and assessing their milestones up to 2030. There are 34 milestones for new technology, and each is being reviewed for progress and relevancy.

Early work indicates that the roadmaps are still mostly valid. Updated, they will continue to be the industry's platform for net-zero success.

Non-CO2 Impacts
An EU mandate for airlines to report their non-CO2 emissions—specifically contrails—came into effect in January 2025. IATA opposes this, noting the lack of scientific consensus on the ability to forecast persistent contrails.

IATA has called for airline monitoring, reporting, and verification to be voluntary. It has released work on non-CO2 emissions and launched an initiative to collect meteorological data so that the industry and its partners can better understand where

contrails form, the effect on them of SAF, and potential avoidance techniques. The academic community will assist in these efforts by refining weather models.

Circularity

A focus on circularity continues to bring improvements to waste management and decision-making regarding single-use plastic replacement in aviation's cargo and passenger sectors. The recommendations in IATA's *Reassessing Single-Use Plastics Products in the Airline Sector*, a report published in March 2024, inform much of that progress.

IATA aims to publish life cycle assessment guidance later in 2025 so that airlines that want to develop or commission a life cycle assessment have a harmonized approach to do so. This should lead to more informed decisions in product replacement and identify the most problematic aspects of certain plastic products.

To address waste management, IATA worked with the Aviation Sustainability Forum (ASF) to update its Airline Waste Analysis Methodology and to develop guidance on measuring and analyzing cabin waste. The methodology was released in November 2024, and IATA continues to work with the ASF on developing additional tools.

In 2024, there was an important clarification by the European Commission (EC) on the scope of Animal By-Products (ABP) legislation—the result of IATA advocacy on International Catering Waste (ICW) in the EU. The clarification opens the door for the industry to better separate materials not containing animal products from other waste on board an aircraft. Airlines can potentially reduce the volume of cabin waste and improve recycling and reuse efforts while maintaining stringent animal health controls.

IATA's collaboration with the US Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) and with US Customs and Border Protection (CBP) led in 2024 to the approval of a proof-of-concept document for working within the exemptions to the Regulated Garbage Regulations. Accordingly, five airlines (British Airways, Icelandair, Lufthansa, SWISS and Virgin Atlantic) and three airports (Newark, New York JFK, and Seattle–Tacoma International) took part in transatlantic recycling trials. These trials improve the understanding of the processes for separation and recycling and demonstrated to animal health regulators that separating uncontaminated reusable and recyclable materials from the cabin on international flights is feasible.

Nevertheless, the handling of ICW remains unnecessarily restrictive. And IATA continues to call for smarter regulations that increase material recovery, financial savings, and customer satisfaction.

FURTHER INFORMATION

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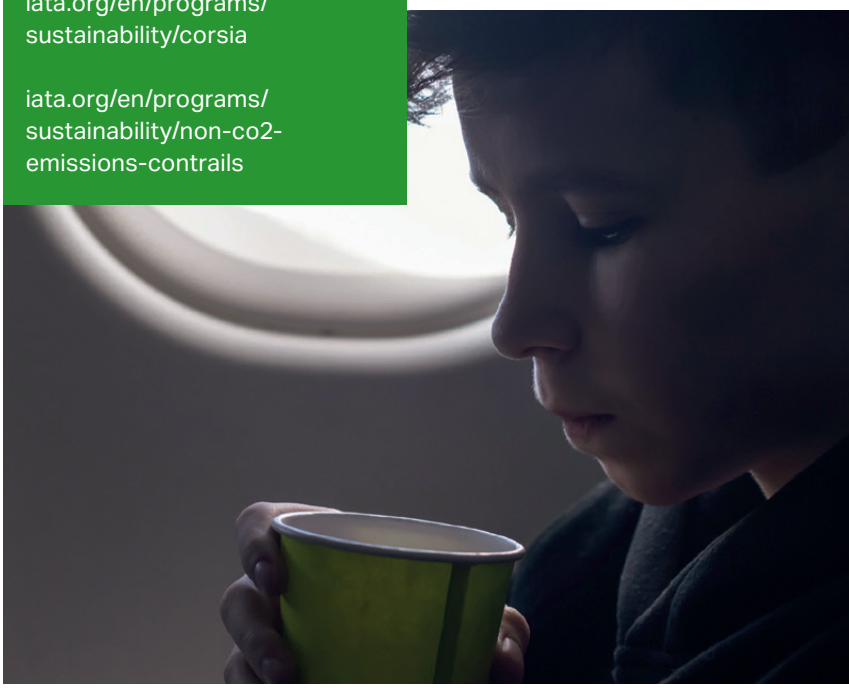

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SAFETY— THE TOP PRIORITY

The industry continued to deliver a strong safety performance in 2024, with several parameters improving compared with the five-year average. There was, however, a step back from the exceptional performance of 2023 as a result of some high-profile and tragic accidents.

The all-accident rate of 1.13 per million flights (one accident per 880,000 flights) was better than the five-year average of 1.25 but worse than the 1.09 recorded in 2023. There were seven fatal accidents in 2024 among 40.6 million flights. That is higher than the single fatal accident recorded in 2023 and the five-year average of five fatal accidents. There were 244 onboard fatalities in 2024, compared with 72 in 2023 and the five-year average of 144.

Airlines on the IATA Operational Safety Audit (IOSA) registry, which includes all IATA member airlines, outperformed non-IOSA carriers on safety. The accident rate for IOSA carriers was 0.92 per million flights compared with 1.70 for non-IOSA carriers.

Regional performance

Two regions saw improvements in air transport safety in 2024 compared with 2023. Middle East and North Africa (MENA) operators' accident rate per million sectors decreased from 1.12 in 2023 to 1.08 in 2024. And North American (NAM) operators went from 1.53 in 2023 to 1.20 in 2024. The fatality risk rate has

been zero for MENA airlines since 2019 and for North American airlines since 2020.

Africa (AFI) had the highest accident rate, at 9.54 accidents per million sectors in 2024. This was an increase from 8.36 per million sectors in 2023.

The Commonwealth of Independent States (CIS) reported an accident rate per million sectors of zero in 2024. It is important to note, however, that data for this region is limited and that this figure may need revision.

Accident types

The most common accidents in 2024 were tail strikes and runway excursions. Notably, the year saw no controlled flight into terrain (CFIT) accidents.

The risk to airlines in conflict zones is a rising concern. But it should be noted that accidents and incidents related to conflict zones are considered security-related events and are not included in IATA's safety report.

Another area of concern is global navigation satellite system (GNSS) interference, including signal disruptions, jamming, and spoofing. In the first half of 2024, GPS signal losses per 1,000 flights significantly increased compared with 2023. GNSS interference is most prevalent in Türkiye, Iraq, and Egypt.

Key Safety Statistics

ACCIDENT TYPE	2023	2024	5-YEAR AVERAGE (2020—2024)
All accident rate (accidents per one million flights)	1.09 (1 accident every 0.92 million flights)	**1.13 (1 accident every 0.88 million flights)**	1.25 (1 accident every 0.81 million flights)
All accident rate for IATA member airlines	0.97 (1 accident every 1.03 million flights)	**0.90 (1 accident every 1.11 million flights)**	0.79 (1 accident every 1.24 million flights)
Total accidents	42	**46**	39
Fatal accidents	1 (0 jet and 1 turboprop)	**7 (5 jet and 2 turboprop)**	5
Onboard fatalities	72	**244**	144
Fatality risk	0.03	**0.06**	0.10
IATA member airlines' fatality risk	0.00	**0.08**	0.03
Jet hull losses (per one million flights)	0.06 (1 major accident every 17.50 million flights)	**0.14 (1 major accident every 7.40 million flights)**	0.15 (1 major accident every 7.12 million flights)
Turboprop hull losses (per one million flights)	0.83 (1 hull loss every 1.20 million flights)	**1.12 (1 hull loss every 0.89 million flights)**	1.37 (1 hull loss every 0.74 million flights)
Total flights (million)	38.6	**40.6**	31.8

Loss Rates and Fatality Risk by Region (per 1 million flights)

REGION	JET HULL LOSS 2023	JET HULL LOSS 2024	JET HULL LOSS 5-YR AVG ('20—'24)	TURBOPROP HULL LOSS 2023	TURBOPROP HULL LOSS 2024	TURBOPROP HULL LOSS 5-YR AVG ('20—'24)	FATALITY RISK 2023	FATALITY RISK 2024	FATALITY RISK 5-YR AVG ('20-'24)
Africa	0.00	1.78	0.36	2.38	5.24	5.78	0.00	0.00	1.60
Asia-Pacific	0.00	0.36	0.26	0.85	0.86	0.34	0.15	0.15	0.16
CIS	1.13	0.00	0.46	0.00	0.00	8.67	0.00	0.00	0.47
Europe	0.13	0.13	0.21	0.00	0.00	0.00	0.00	0.03	0.01
Latin America and the Caribbean	0.00	0.40	0.36	0.00	2.97	2.22	0.00	0.35	0.08
Middle East and North Africa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
North America	0.00	0.00	0.03	1.48	0.00	0.64	0.00	0.00	0.00
North Asia	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.05
Global	0.06	0.14	0.15	0.83	1.12	1.37	0.03	0.06	0.10

Data on incidents, accidents, flights, and maintenance is included in IATA's Global Aviation Data Management (GADM) program. Advances in such new technologies as artificial intelligence will allow the GADM to better identify emerging safety risks.

IATA's analyses of accident investigations spanning 2018–2023 reveal that just over half published an accident report as obligated under Annex 13 of the Chicago Convention. This paucity denies stakeholders vital insights that could improve aviation safety.

Safety strategy

IATA's safety strategy is to reduce accidents by improving safety leadership, enhancing safety risk analysis, and emphasizing the exchange of safety information among professionals.

Safety Leadership. The IATA Safety Leadership Charter has been signed by more than 120 airline CEOs, representing over 75% of global commercial airline traffic. To facilitate the practical application of the charter's guiding principles, in 2024 IATA reviewed risk-based IOSA maturity criteria to align these two key safety programs.

Also in 2024, IATA enhanced its Aviation Safety Culture Survey (I-ASC). Organizations can now customize the I-ASC to their specific needs. IATA assisted seven aviation organizations, including two airlines in Africa, to assess safety culture and implement improvements through the I-ASC in 2024.

Safety Hub. The Safety Issue Hub covers 95 safety issues across a range of operational and risk areas and is vital to IOSA's risk-based approach. It provides eight regional risk pictures of high-priority safety issues. In 2024, the hub was repositioned and integrated with the IOSA airline registry on a single platform.

Safety Connect. The IATA Connect website and app were launched in 2024. They are designed so that airlines, regulators, auditors, and supporting organizations can facilitate all IOSA auditing and safety risk identification and management activities. Airlines can access and share audit reports, report safety issues, seek guidance and information regarding best practices, and more.

"A feature of IATA Connect is peer-to-peer discussions through which industry professionals are able to collaborate on shared safety challenges."

A feature of IATA Connect is peer-to-peer discussions through which industry professionals are able to collaborate on shared safety challenges. Approximately 5,000 aviation safety professionals are members of the IATA Connect community, including representatives from all IOSA-registered airlines and auditors.

IOSA

In 2024, more than 100 risk-based IOSA audits were conducted. Risk-based IOSA delivers enhanced safety insights through a data-driven approach to identifying the most critical IOSA standards and recommended practices (ISARPs) for an operator based on a deep assessment of the operator's profile. This approach includes new audit methods, such as a maturity assessment of an operator's safety management system (SMS)

and safety critical programs, process-based auditing, and risk-based thinking.

On average, 2024's risk-based audits identified three times more nonconformities than conventional audits thanks their more targeted audit methodology.

The IOSA registry grew significantly in 2024, welcoming 46 new airlines and bringing the number of airlines on the registry to 446. Globally, more than 40 civil aviation authorities use IOSA to complement their regulatory oversight.

Brazil's National Civil Aviation Agency (ANAC Brazil), for example, signed an agreement in 2024 to have IOSA and the IATA Standard Safety Assessment (ISSA) complement its oversight of airline operations in Brazil. IATA and ANAC Brazil will also hold joint workshops and training sessions to further their collaboration, including exploring activities for continuous safety-related improvements.

IATA Turbulence Aware

IATA Turbulence Aware is a global data-sharing platform based on real-time turbulence reports generated by close to 3,000 aircraft. The aim is to give pilots and dispatchers accurate information in real time.

The platform uses the eddy dissipation rate (EDR) to measure turbulence intensity. The EDR is an aircraft-independent absolute value and the ICAO and World Meteorological Organization (WMO) standard metric for measuring clear-air turbulence.

IATA Turbulence Aware generated

51.8 million

turbulence reports in 2024.

An aircraft equipped to measure turbulence with EDR will generate reports from takeoff to landing. Its real-time data will be downlinked to the airline's server and transferred to the IATA Turbulence Aware platform database, where it will be read, normalized, validated, stored, anonymized, and made available for widespread consumption.

The upshots will be improved safety outcomes, an enhanced customer experience, and optimized fuel burn.

FURTHER INFORMATION

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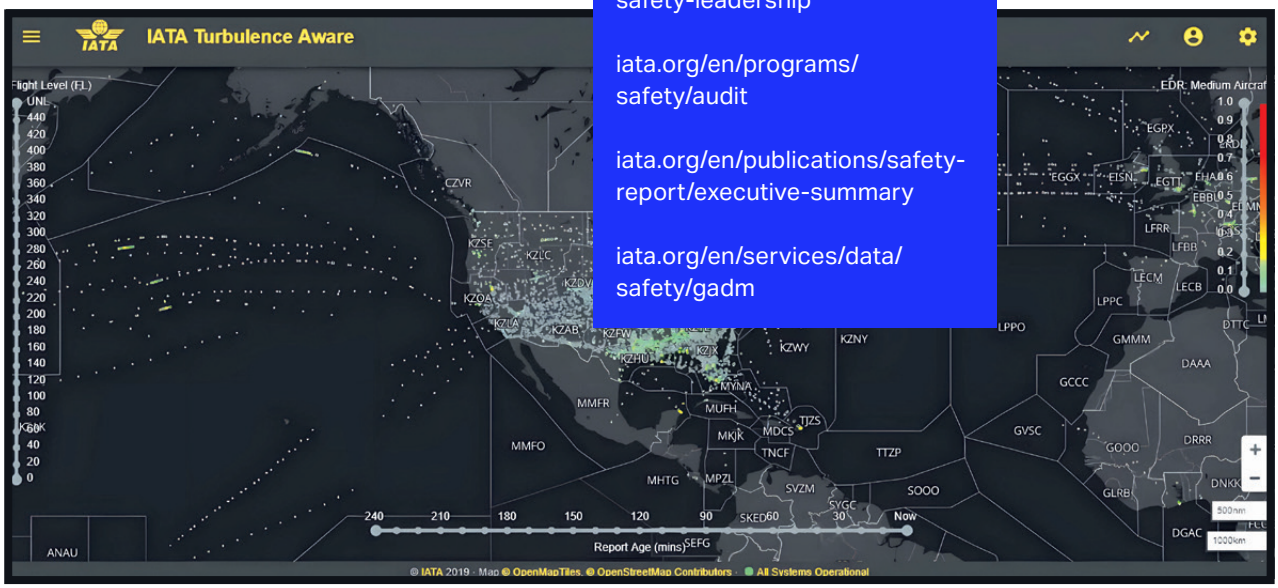


PUTTING THE PASSENGER FIRST

Accommodating the strong demand for air travel will require new technologies, harmonized regulations, and fit-for-purpose infrastructure. IATA is collaborating with its members, partners in the industry, and governments worldwide to enable airlines to deliver a more seamless, inclusive, and secure passenger experience while improving efficiency and lowering industry costs.

Digital identity

Digital travel is a major component of this effort. Travelers can store identity documents in a digital wallet and then, by consenting to share their biometrics, pass through various airport checkpoints—such as bag drop, security, immigration, and boarding—without needing to show physical documents.

In 2024, a proof of concept (PoC) using different digital wallets and travel credentials was tested with select travelers on the route between Hong Kong and Tokyo.

Cathay Pacific, Hong Kong International Airport, Narita International Airport, Branchspace, Facephi, NEC, Neoke, Northern Block, and SICPA partnered in the PoC, which took place in a functioning airport environment.

The successful PoC—developed in the IATA Data and Technology Hub—integrates seven verifiable credentials (e-passport copy, live biometric image, visa copy, company ID, frequent flyer membership, retail order, and boarding pass); two digital wallets; and a trust registry to verify issuers. This validates the flexibility of the required technology across travel stages and jurisdictions.

It also aligns with government efforts to adopt digital travel credentials based on International Civil Aviation Organization (ICAO) standards. The European Union (EU), for instance, is preparing to issue digital wallets—a secure means of storing and sharing digital documents—to citizens and residents by 2027.

Some necessary actions to further digital identity have been identified:

- Verified credential and decentralized identifier technologies should be incorporated into national and international security frameworks in alignment with ICAO Annex 17 and aircraft operator security programs (AOSP).
- Aviation digital identity should be integrated into national digital strategies and lead to global harmonization.
- Resources should be allocated to equip industry stakeholders with the knowledge and infrastructure for seamless digital identity implementation.
- Stakeholder engagement should be accelerated to encourage the industry-wide adoption of digital identity solutions.

Travel documentation

With passenger traffic set to double by 2040, optimizing and enhancing airport processes will need to continue. Verifying passengers' travel documentation is one of the more time-consuming tasks which will benefit from further automation.

IATA's Timatic suite of products, which includes Timatic Autocheck, has evolved over decades, earning the trust and reliance of both industry professionals and travelers. Annually, more than 1 billion passenger document checks are performed through Timatic. The recent redevelopment of the Timatic suite of products marks an important progression in simplifying and streamlining the offering to enhance the experience for passengers and users alike.

This includes the relaunch of Timatic Web. With a new Ease of Travel index and an enhanced interface, Timatic Web makes it easier than ever for airlines and travel organizations to provide travelers with real-time updates to help them prepare for their journey.

Modern airline retailing

IATA's Modern Airline Retailing (MAR) initiative is expanding throughout the aviation value chain. Decades-old technologies, processes, and standards that were inhibiting customer centricity are being replaced by MAR's 100% Offers and Orders typical of genuine retailing.

In a 2024 global survey of 150+ airline employees,

81%

of respondents stated that **their airline has live NDC channels,** and in some cases the airline has already achieved NDC penetration of

>50%

of its indirect channel bookings.

This grants air travelers the same level of transparency on airline products and services that they get when they shop for consumer products online and regardless of where they shop and pay. Indeed, MAR fully integrates payment management.

Moreover, travelers will no longer need to juggle reference numbers and various documents, such as passenger name records (PNR); e-tickets; and electronic miscellaneous documents (EMD). Instead, they will have an order detailing their purchase, and the airline internal processes of revenue accounting and reconciliation will be simplified.

The New Distribution Capability (NDC) messaging standard—integral to the offers phase of the Offers and Orders journey—is established, enabling the industry to focus on the transformation to MAR. This will further smooth passengers' ability to purchase and receive air travel products and services seamlessly through their preferred channels and at a level of convenience and personalization akin to genuine modern retailing.

By 2026, the Passenger Standards Conference (PSC) aims to develop standards involving Offers and Orders communication, such as product taxonomy, tax integration, and interline data exchange. Importantly, all standards are being developed with a cross-functional approach to break down silos.

In 2024, meanwhile, a survey by IATA of major IT providers found that significant progress was being made in the technical architecture that makes Offers and Orders possible.

The transition to Offers and Orders is thus gathering speed at airlines. The acceleration is demonstrated by the high-level industry transition roadmap released by IATA in November 2024. According to the roadmap, core solutions are anticipated by 2026, with adoption at scale expected from 2030. Leading airlines have already embarked on the journey.

The journey to Offers and Orders will affect numerous airline departments. Finance departments, for example, will be transformed. Transactions will be transparent from booking to destination, eliminating the need for lengthy reconciliation processes.

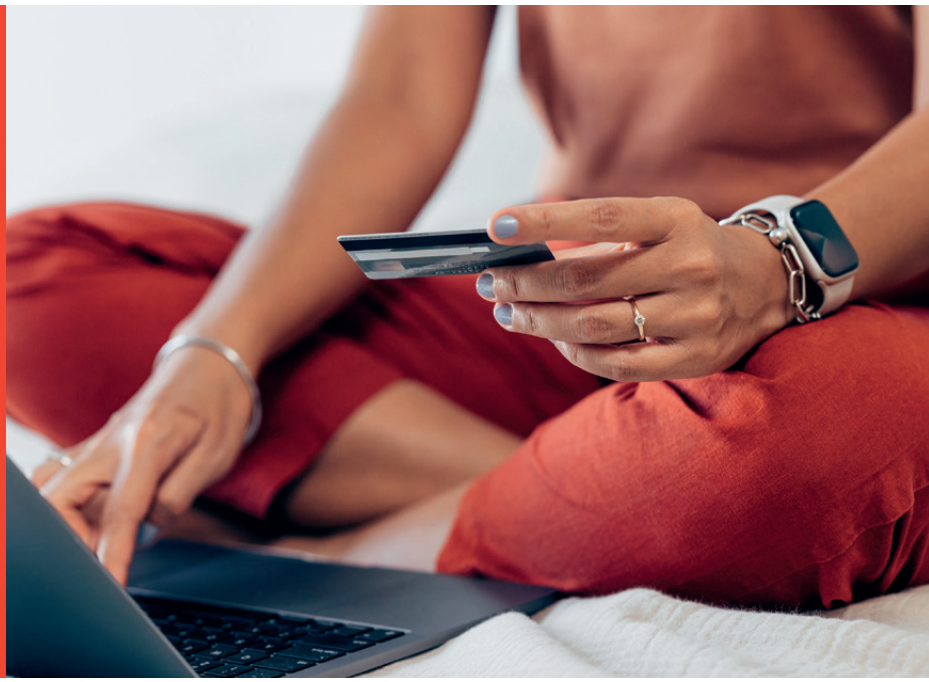
The move to transform payment standards has also begun. Conventional payment standards can have proprietary add-ons that lock in an airline to a particular product. Updating these standards will empower airlines to enhance value creation and ultimately offer customers additional preferred payment options.

A High-Level Industry Roadmap to 100% Offers and Orders (O&O)

	2025	2026-27	2028-29	>2030
INDUSTRY STANDARDS	• Core standards[1] available	• Prioritized standards are ready[2] • Monitoring of standards adoption	• Consider mechanisms to accelerate towards end goal • All standards ready	• Decommissioning legacy standards
AIRLINE READINESS	Leaders in set-up phase • Leaders testing on direct channel • Leaders set up enterprise transformation plan (people, finance, legal, etc.)	• Leaders using Orders as master record[3] and translators to legacy • O&O interlining[4] is tested • 1st digital payment strategies	• Leaders using native O&O capabilities and gradually removing dependency on PSS[4] • 1st O&O interline[5] deployments • More airlines start O&O journey	• O&O become mainstream including interline • Gradual technical PSS[4] decommissioning
IT VENDOR READINESS	• Frontrunners set up core O&O solutions[5] • Testing of translators to legacy	• Frontrunners live with O&O solutions and translators • Majority of providers have O&O solutions[6] • 1st Order based travel agent User Interfaces • O&O interlining[5] is tested	• O&O solutions ready for large scale deployments • First Order based DCS and GH User Interfaces tested • Order based travel agent UIs available	• Multiple end-to-end, modular O&O solutions including future of delivery[8] available to market
OTHER STAKEHOLDER READINESS	• Seller engagement continued • Government advocacy on Orders & Digital Identity • Main GH & airports aware • A framework for cooperation with other verticals is drafted	• Leading sellers are processing airline Orders • Broad awareness of O&O among ground handlers and airports • Other verticals carry out 1st pilots with airlines	• Leading sellers are processing a critical mass of Orders • Governments support O&O benefits • Other vertical implementations	• Continued

1 Core standards: NDC, ONE Order for Accounting and Delivery, SRSIA framework for Interlining with Offers & Orders.
2 "Prioritized standards" refer to Passenger Services Conference-wide priorities established in October 2024. These include Offer – Order Management Data Exchange; Complex Order Servicing; Seller Risk Management; Tax Data in Offers and Orders; Product Taxonomy; Supplier Catalogue; Interline Offer and Order Data Exchange. PSS = Passenger Service System; DCS - Departure Control System GH = Ground handlers UI = User interface (or spell out in text)
3 Order as primary record rather than PNR/E-TKT (incl. Order Accounting for some airlines).
4 Passenger Service System.
5 O&O interlining = Partnerships with Offers and Orders under SRSIA (1780s) instead of legacy interlining using fares/E-TKT/Proration.
6 O&O solutions = Initially Offers and Orders solutions will cover capabilities with Product – Offer – Order – Finance (Order accounting) Management as per IATA RP1786a and legacy system translators.
7 Ground handlers.
8 See white paper MAR: Leveraging Orders and Digital Identity to Enhance the Customer Travel Experience.

At year-end 2024, there were **47 airlines in 37 countries** offering IATA Pay.



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IATA Pay

IATA Pay is an alternative payment method that allows passengers to purchase tickets online by directly debiting their bank accounts in an account-to-account form of payment within the Billing Settlement Plan capabilities. This improves the speed and security of payments while reducing the cost for airlines.

At year-end 2024, there were 47 airlines in 37 countries offering IATA Pay. This is a near doubling of the 2023 figures, and IATA Pay's growth is expected to continue in 2025. Multiple airlines are signed up and awaiting the technical implementation.

The market will guide IATA Pay's growth. IATA Pay is already present on all continents and will expand to an increasing number of countries as regulation and banking infrastructure permits. Universality is likely to lead to accelerated adoption.

Passenger regulation

Several governments were active with consumer regulation in 2024. Developments in four markets—Australia, Canada, Europe, and the United States—are worth highlighting.

In Australia, the prospect of European-style consumer regulation for aviation was avoided. The Australian government chose to continue applying Australian Consumer Law (ACL) to air transport rather than sector-specific rules. A government white paper on aviation announced that an ombuds scheme will be established to deal with airline cases under the ACL. This outcome after a comprehensive policymaking process demonstrates that EU261, the European regulation that deals with compensation for air travelers, is not a gold standard to be followed.

The Canadian government, in contrast, decided in 2019 to largely copy EU261 when developing its Air Passenger Protection Regulations (APPR). This has inevitably led to the same problems in Canada as in Europe. The Canadian Transportation Agency (CTA) is consequently drowning in cases and administrative costs. So the Canadian government proposed in 2024 to charge airlines C$790 ($570) for every case, irrespective of outcome, and to publish, in late 2024, proposals to strengthen the APPR.

IATA is fighting these proposals. But with a new government in power in Canada since May 2025, a resolution favorable for air transport is unlikely in the year ahead. IATA will nevertheless pursue its advocacy efforts, emphasizing to the Canadian government that the APPR will exacerbate the general trend of Canada becoming a high-cost operating environment for airlines, with all the negative connotations for Canadian consumers and businesses.

EU261 costs airlines some **$5.68 billion** annually.

In Europe, the Draghi report—published in September 2024—made clear that Europe is struggling to be competitive in the global market. The report notes that "well-functioning transport networks and services and a prosperous transport industry are crucial to the competitiveness of the entire EU economy."

The CrowdStrike outage in July 2024 demonstrated that EU261 is not fit for purpose. The annual costs of compensation, care, and assistance run into the billions of dollars. And airlines are liable for penalties even if the cause of delays is beyond their control.

The 20 years since EU261's introduction have not seen a reduction in delays because airlines shoulder the burden such that other actors have no incentive to improve conditions. In early 2025, however, the Polish presidency of the European Council thankfully recognized that EU261 is a costly and ineffective regulation and a drag on European competitiveness. It is hoped that this will lead to much-needed and long-anticipated reforms.

Another threat to air transport in Europe, though, is the regulation of multimodal journeys that could complicate a nascent area of operations. IATA is concerned that the overregulation of a market segment in its infancy will prove a disincentive to companies and end up restricting consumer options.

Also in Europe, IATA is working with airlines to push back against the Spanish government's bid, in November 2024, to sidestep European law by removing cabin baggage fees for passengers in Spain and fining noncompliant airlines €179 million ($203 million) in the process. The move undermines airlines' freedom of pricing, which is fundamental to consumer choice and competition and a principle that has been long upheld by the European Court of Justice.

In the United States, the outgoing Biden administration maintained a heavy-handed approach to aviation to the end. A case in point is the mandated automatic refunds for flight cancelations or significant delays that might strand passengers. Airlines pushed back against some of the Department of Transportation (DOT)'s overreach, but figures show that during Biden's tenure DOT issued penalties against airlines of some $225 million. This compares with just $70 million in fines between 1996 and 2020.

It is hoped that the current US administration will revert to the principles of the Airline Deregulation Act (ADA). The ADA has served US airlines and travelers well for more than 45 years.

Elsewhere, Latin America is witness to a wide range of legislative proposals that, enacted, would impinge on airlines' commercial freedoms and constrain their ability to offer consumers choice and value. IATA is advising the region's lawmakers and regulators on the risks of poorly designed regulation. In Brazil,

for example, the volume of litigation has become a major problem for airlines.

Consumer regulation also seems to be an increasing area of focus for governments in Asia-Pacific and the Middle East that had previously refrained from intervening. IATA is pushing back against regulatory developments in markets ranging from Malaysia and Oman to South Korea and Saudi Arabia.

Accessibility

Accessibility is taking on increasing importance, especially as the population ages in much of the developed world. There are an estimated 1.3 billion people with disabilities according to the World Health Organization, making disabled individuals an essential segment for air travel demand.

IATA advocates for a consistent regulatory approach by countries and for the standardization of certain operations essential as precursors for seamless accessibility. Unfortunately, accessibility regulation has often originated from specific cases and hasn't been aimed at achieving universally accessible air transport on a global and coordinated basis.

A resolution at the 2019 IATA AGM committed the industry to disability inclusion. And a similar resolution at the 2022 ICAO Assembly established a work program on air transport accessibility. IATA has contributed to this program and will have its recommendations presented at the 2025 ICAO Assembly.

IATA has also released accessibility guidance and guidance on the safe loading of mobility aids in the latest version of its *Airport Development Reference Manual*. IATA, moreover, is working on accommodating invisible disabilities, such as autism and deafness.

Most importantly, IATA has developed an international system of standardized special service request (SSR) codes that can be included in the PNR and employed throughout the passenger's journey. IATA Resolution 700 includes a list of approved SSR relating to disability assistance and their standardized definitions. Examples include codes for special meals and for wheelchair assistance.

IATA collaborates with representatives from the disability community to enhance air travel experiences for passengers with disabilities. The aim is to deliver clearly defined, measurable policy objectives that provide a safe and positive travel experience for all travelers.

FURTHER INFORMATION

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iata.org/en/programs/passenger/passenger-facilitation

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GROWING IMPORTANCE OF DATA

Data is critical to shaping the future of aviation. Thanks to developments in artificial intelligence (AI) and predictive analytics, data is driving improvements in safety, efficiency, the passenger experience, and sustainability, among much else.

IATA is supporting data-related developments through a formal data strategy. IATA's strategy ensures that airlines retain control of their data while making their wealth of information available to all.

The basic principle of "give to get" underpins much of IATA's data strategy. In return for supplying data, individual airlines, and the industry overall, receive anonymized benchmarking and analytics in key areas that can make air transport safer and more sustainable and efficient.

Handling swathes of data, much of it financial, makes cybersecurity paramount. IATA invested heavily in this area in 2024 and its cyber posture—as assessed by global professional services firm EY (formerly Ernst & Young)—has matured significantly.

To bring together all data-related elements, IATA held its first World Data Symposium (WDS), in Dublin, in February 2025. The symposium emphasized three priorities for the industry:

1. To use AI more intensely to derive heightened value from data.
2. To innovate by integrating such technology solutions as cloud computing, automation, and digital identity to deliver a seamless passenger journey.
3. To build cyber resilience to protect critical infrastructure, ensure data integrity, and safeguard passenger trust.

The WDS coupled that emphasis on data, technology, and cybersecurity with the results of three proof-of-concept (PoC) programs that IATA undertook with companies in its Strategic Partnerships Program:

- **Cargo Acceptance Process**. The PoC demonstrated the efficiency of using a large language model (LLM) to manage regulatory compliance in the air cargo acceptance process and for such broader benefits as reduced waste.
- **Agency Onboarding**. This PoC revealed how the use of digital identity reduces the time and effort needed to onboard new agents while lowering the potential for fraud.
- **Passenger Entitlements**. This PoC showed how travelers' digital identity credentials (stored as virtual credentials in a digital wallet on their mobile phone) could be combined to automate processes such as lounge and onboard access.

The evolving worldwide regulation of data, meanwhile, affects AI, LLM, and machine learning (ML).

The scope of these technologies is such that general quantification of their implementation and impact is impossible, so use cases are being studied to see what can be learned. To see in particular how AI could make a difference, air traffic monitoring, risk and fraud detection, and forecasting models for passengers and cargo are among the specific areas being examined.

A regulatory framework for many of these areas is, of course, essential. But it is equally important that innovation isn't stymied, and that the unique requirements of aviation are considered.

In the EU, the General Data Protection Regulation (GDPR) continues to dominate. The EU Commission is looking at potential changes to the GDPR's obligations for small and medium-sized businesses, notably the retention of records. IATA notes that many countries—including multiple countries outside the EU—are implementing or amending their regulations to align with GDPR, with some imposing even stronger measures. This has made the global environment increasingly complex and challenging for airlines.

There are more than
160 countries
with unique data protection laws.

Source: iata.org/en/programs/passenger/data-protection-privacy

Global data protection

It is essential that airlines be able to confidently, seamlessly, and securely share data across borders.

Cross-border data transfer, however—notably of passenger name records, advance passenger information, and passport details—are subject to numerous and often contradictory checks and rules. Some data protection rules are extraterritorial, some overlap, and some even define legal terms, such as consent, differently. What's more, cross-border data transfers can be further complicated by the increasing number of passengers, especially among transit traffic, of dual nationalities.

IATA's May 2024 white paper on *Data Protection and International Carriage by Air* advocates for accelerated harmonization efforts for cross-border data transfer. It

The average commercial aircraft creates **20 terabytes** of engine information per hour.

underpins IATA's efforts to formalize the subject with the ICAO Legal Committee to ensure that the multiple data protection frameworks globally are compatible, work that will culminate at the September 2025 ICAO Assembly.

Airlines too will have a voice in external discussions on harmonizing regulations related to cross-border data transfers. The Organization for Economic Co-operation and Development (OECD)'s Data Free Flow with Trust project is one such conduit.

Aircraft Operational Data (AOD)
In October 2024, IATA partnered with Airbus, Embraer, and Rolls-Royce to establish five principles for access to, and the use. These are:

1. Consent. Airlines must give written consent for the extraction of their AOD.
2. Transparency. Airlines must be apprised of what data has been generated by their aircraft and how it is used.
3. Sharing. Airlines can choose who they share AOD with and control what they share.
4. Accessibility. Airlines can access, analyze, and use AOD from their aircraft without interference.
5. Responsible Use. Airlines can choose to provide AOD to original equipment manufacturers (OEMs) to improve aircraft safety and reliability.

These five principles will assist airlines, manufacturers and other involved parties to better utilize AOD. The outcome will be improvements in the safe, sustainable operation and management of aircraft.

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MAKING SLOT REGULATION COUNT

In 2024, air transport traffic recovered from the pandemic and resumed its upward trajectory. How to raise airport capacity thus became the critical question.

Surging consumer demand for air transport has prompted airport projects worldwide, including in Australia, India, Morocco, Saudi Arabia, United Arab Emirates, and Vietnam. Even so, building infrastructure, especially to stringent environmental regulations and in congested cities, is a long and complicated process.

Where new infrastructure is not possible in the short term, the next option is adherence

to the *Worldwide Airport Slot Guidelines* (*WASG*). The *WASG* is the best way to manage slots fairly, efficiently, and transparently and has been essential to airline scheduling and airport capacity management since the early 1960s. The *WASG* has, however, evolved to meet the needs of the industry and the consumer.

In late 2024, moreover, IATA released a white paper that articulates a vision for further industry collaboration and policy development amid ongoing airport capacity challenges. The paper stresses the need for accurate and routine demand and capacity analyses from airports of all capacity issues: runways, taxiways, gates, peak flows, and terminal configuration. These analyses will identify bottlenecks by comparing existing and projected demand.

Timeliness is essential. Many airports rely on outdated data, so their declared capacity is not optimal. IATA's white paper calls for a maximum period of time between airports' analyses to be defined and emphasizes that analyses be in advance of seasonal slot coordination. Airlines need slot-related information with sufficient lead time to allow for meaningful discussion with airports and slot coordinators.

On average,
nine airports become Level 2 or Level 3
slot coordinated every year.

IATA also advocates for a strengthened coordination committee to facilitate communication among the three main parties: airlines, airports, and slot coordinators. It is essential that the right people are involved and that negotiations and paperwork are, preferably, in English. Slot agreements should not happen with a local station manager in the local language.

The twice-yearly IATA Slot Conferences continue to grow in importance. The November 2024 conference in Singapore hosted a record nearly 1,500 delegates and 9,500 face-to-face meetings. The rising attendance underscores that these events are the only practical, viable way to plan seasonal schedules.

Notwithstanding that the majority of the world's constrained airports adhere to the *WASG*, challenges remain. Potential reductions in capacity in the Netherlands and Ireland, for example, put at risk the historic slots protected by the *WASG* and other regulations.

TOP 5

AIRPORT CHARGE INCREASES

POSITION	AIRPORT	INCREASE
1	**Ninoy Aquino International (Manila)**	2024 = 200+% landing and takeoff charge.
2	**Istanbul**	2024 = 50% landing increase
3	**Amsterdam Schiphol**	2024 = 14.8% 2025 = 41.4%
4	**Cairo International**	2024 = 25%
5	**Auckland**	2024 = 12% international pax, 14% domestic pax

In July 2024, the Netherlands' Supreme Court upheld the original decision of the Amsterdam District Court that the experimental regulation to reduce Schiphol's yearly capacity to 460,000 was not in compliance with ICAO's Balanced Approach to noise management.

The Balanced Approach was adopted by the ICAO Assembly in 2001 as a coherent method to address aircraft noise and is included in Annex 16. It is also part of EU regulation 598/2014 and stipulated in the US-EU Air Transport Agreement.

Even so, in December 2024 the Dutch infrastructure ministry announced a 478,000 cap on annual flights. This followed an announcement of a 41% rise in airport charges in 2025, a further 5% rise in 2026, and then a 7.5% decrease in 2027.

Industry organizations decried the potential loss of Dutch connectivity and the threat to the integrity of the EU Single Market. The United States warned that air agreements were being broken.

The Dutch authorities, moreover, target commercial aviation alone, despite the inclusion of noise from general and business aviation in the baseline scenario. And commercial aviation is minimizing noise with better operating procedures and more.

The authorities' efforts, therefore, are discriminatory, contradicting principles of fair treatment and market access. Fundamentally, annual operating levels should not be predetermined, and this matter is under further litigation.

In late April 2025, a court in the Netherlands rejected IATA's request for interim relief from the proposed capacity cut. Barring either a change of mind by the Dutch government or a ruling out of a different court (which hasn't yet been sought), the capacity reduction will go forward for the winter 2025 season.

Ground handling

Ground handling is integral to airport operations. It ensures safety, efficiency, and on-time performance and pursues sustainability initiatives.

In late 2024, IATA announced further collaboration with the Airport Services Association (ASA) to improve ground handling services. The organizations will work to reinforce standardization, promote safety data sharing, and explore approaches to enhance sector resilience. IATA and ASA collaboration includes the following:

- **Safety Data**. The organizations will share and analyze safety information to address safety issues related to ground and cargo handling through the ASA's Safety Incident Database and IATA's Incident Data Exchange—part of IATA's Global Aviation Data Management (GADM) initiative.
- **Industry Standards**. ASA and IATA will employ data to develop industry best practices and standards for ground and cargo handling with a focus on industry-wide adoption and reductions in variations of the *IATA Ground Operations Manual* (*IGOM*) and the *Airport Handling Manual* (*AHM*).

An Enhanced Ground Support Equipment (GSE) Recognition Program, meanwhile, has been put in place in response to increased ground damage. The cost of this trend, IATA estimates, could double to nearly $10 billion by 2035 without prevention. The GSE Recognition Program will encourage industry-wide best practices for a standardized approach to minimizing ground damage.

Ground handling service providers (GHSP) participating in the program can have their GSE assessed for compliance with criteria for reducing ground damage. GHSP that achieve a ratio of enhanced to non-enhanced GSE that exceeds a predetermined threshold receive a recognition stamp valid for two years. IATA estimates that transitioning 75% of the global GSE fleet to enhanced GSE will reduce forecasts of the ground damage cost per turn rate 42%.

Single European Sky

In December 2024, the Single European Sky (SES) regulation SES2+ entered into force. SES2+ offers rules and incentives that encourage monopoly air navigation service providers (ANSP) to pursue efficiency gains and modern technologies. This new regulation also seeks to reduce flying's environmental impact.

IATA, however, points out that SES2+ is a compromise that will prevent the SES from delivering on its promises to triple Europe's airspace capacity, halve costs, improve safety 10-fold, and raise environmental performance 10%. According to IATA, SES2+ will instead stunt European competitiveness and leave emissions savings unrealized.

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COUNTERING A PROLIFERATION OF TAXES

There was some good news regarding aviation taxes in 2024. Sweden abolished its aviation tax charged to passengers, with Hungary, Thailand, and some Italian regions among those who stepped back from aviation taxes in recognition of their lack of environmental impact and their potential economic harms.

The Swedish government, for example, announced that it will abolish the country's aviation tax on 1 July 2025. The tax ranges from SEK76–504 ($7.40 to $49.00) depending on the destination, and revenues from it are not, as proclaimed, being invested in environmental solutions.

But there were also challenges related to aviation taxes. Most notably, an amendment to Article 8 of the UN Model Convention has considerable consequences for airlines. It gives countries the option of a source-based rather than residence-based approach to taxing income from international air transport.

This contravenes International Civil Aviation Organization (ICAO) tax principles. And ICAO has written to its contracting countries to remind them of the long-standing, and effective, agreement among nations for residence-based airline taxation. A source-based approach causes multiple issues, including the prospect of double taxation, lengthy and costly tax filing obligations, and bilateral agreement discrepancies. Efforts to return Article 8 to only a residence-based approach continue. IATA has joined ICAO in calling on governments to raise concerns with the UN Economic and Social

Council (ECOSOC), within which the UN Tax Committee operates.

Efforts to return Article 8 to a residence-based approach continue. IATA has joined ICAO in calling on governments to raise concerns with the UN Economic and Social Council (ECOSOC), within which the UN Tax Committee operates.

IATA will also suggest potential refinements to ICAO tax principles at the 2025 ICAO Assembly. The principles are dated and don't consider the evolving financial landscape and its many new forms of taxation.

Green taxes

Taxes also continue to proliferate under a green label. A proposed aviation tax in Belgium is one example. The imposition of environmental taxes is contrary to the ICAO Council Resolution on Environmental Charges and Taxes, which states that environmental levies should have no fiscal aims, should be related to the costs of mitigating the environmental impact of aircraft, and should not discriminate against aviation compared with other modes of transport.

Furthermore, in October 2024 IATA surveyed 6,500 recent airline travelers from 16 countries. Some 78% felt that taxation was not how to make aviation sustainable.

ICAO has again written to its contracting nations, asking them to express concern for proposals to use international aviation as a source of revenue for climate finance. ICAO also asks that its contracting nations cooperate in its outreach activities at COP30 in November 2025 in Brazil.

As part of that plan, the EU Energy Taxation Directive is being revised such that it could ultimately levy a tax on jet fuel.

The UN Global Solidarity Levies Task Force, meanwhile, will make recommendations at COP30. It is suspected that among them are various proposals to impose levies on aviation.

"Environmental levies should have no fiscal aims, should be related to the costs of mitigating the environmental impact of aircraft, and should not discriminate against aviation compared with other modes of transport."

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THE TRANSFORMATION OF AIR CARGO

Air cargo continued its upward trend in 2024. Demand, measured in cargo tonne kilometers (CTK), increased 11.3% compared with 2023, and capacity rose 7.4%. Although yields were 1.6% lower than in 2023, they were still 39.0% above the 2019 level.

Digitalization, sustainability, and safety are the key issues on the global air cargo agenda.

Digitalization

Digitalization is replacing traditional, paper-based manual processes. This is enhancing efficiency in cargo operations ranging from tracking to customs clearance.

IATA's ONE Record—a data-sharing standard that provides a single record of shipments—foresees an end-to-end digital logistics and transport supply chain. Data will be easily and transparently exchanged in a digital ecosystem covering air cargo stakeholders, communities, and data platforms. ONE Record cuts out duplication, closes data blind spots, and strengthens compliance with regulatory requirements.

Air cargo is on track to achieve 100% ONE Record airline capability by January 2026. And there is a concerted effort to extend ONE Record's digital advantages across all supply chain participants.

In 2024, Cathay Cargo, Airport Authority Hong Kong, and IATA realized the world's-first ONE Record shipment, from Dongguan, China, for export from Hong Kong. Cathay Cargo also partnered with Dimerco Air Forwarders and GLS Hong Kong to transport semiconductor thermal paste and monitor the condition of the shipment using a cargo-tracking device and real-time data sharing via the ONE Record API (application programming interface).

ONE Record will be vital to e-commerce, which averages about 20% of the air cargo business. The surge in pharmaceutical transport and e-commerce has sparked efforts in the real-time tracking of shipments. As an example, the integrity of time- and

temperature-sensitive goods is covered in the updated *IATA Interactive Cargo Guidance.*

Late in 2024, IATA also launched an Air Cargo Device Assessment Program to validate air cargo tracking devices, data loggers, and sensor-equipped devices for compliance with IATA's Recommended Practice 1693. Device manufacturers, airlines, shippers, and forwarders all gain when the integrity of time- and temperature-sensitive shipments is preserved, as this reduces waste.

Meanwhile, the digitalization of customs and trade facilitation processes has helped countries progress considerably toward streamlining their border operations and securely managing trade flows. The expansion of the preloading advance cargo information (PLACI) initiative underscores the importance of accurate data sharing across borders. By year-end 2024, the United Arab Emirates and Canada had implemented PLACI.

To ensure that air cargo's digitalization maintains its pace, more than 30 organizations have signed the Air Cargo Digitalization Leadership Charter. The signatories commit to five guiding principles:

1. Developing a unified and collaborative digital strategy that champions interoperability and the use of global standards across the entire supply chain.
2. Enhancing organizational resilience through building robust digital infrastructure and implementing strategies that safeguard against cybersecurity risks while ensuring the responsible use of generative AI.
3. Pursuing sustainable digitalization with a focus on supporting eco-friendly technology initiatives.
4. Pursuing digital excellence by staying ahead of digital trends, ensuring secure and sustainable practices, and establishing industry best practices.
5. Using new technology ethically when embracing emerging technologies.

Sustainability

Momentum around sustainable aviation fuels (SAF) is ongoing, with the principals in the air cargo market taking steps to ensure their use of SAF. And at least seven shipper-forwarder SAF deals were signed in 2024—including Formula 1's investment deals with Qatar Airways and DHL.

"Air cargo is on track to achieve 100% ONE Record airline capability by January 2026."

Air cargo is also making an effort to reduce single-use plastic, either eliminating or reducing it, in volume, size, and thickness, where possible. Atlas Air, for example, reuses shredded cardboard as packaging material in place of plastic, significantly reducing plastic waste. The sector is committed to circularity, recycling, and reusability. IATA has issued guidance to eliminate single-use plastics in aviation and its cargo supply chain, which it incorporates in handling standards.

Lithium batteries

Lithium battery shipments continue to increase in number. Devices powered by lithium batteries are proliferating, and the batteries are ever-more powerful. To ensure that incidents involving them do not increase, the industry is taking action.

Stopping rogue shippers is critical. Too many lithium battery shipments enter the air cargo system undeclared or mis-declared, putting

aircraft and personnel at risk. Civil aviation authorities must take firm enforcement action against noncompliant shippers, and governments must actively support ICAO's work to strengthen Annex 18—the global framework for the safe transport of dangerous goods by air.

Training in handling dangerous goods must be rigorous and compliance universal. In 2024, more than 85,000 professionals were trained at IATA's Competency-Based Training and Assessment (CBTA) Center for Dangerous Goods.

Meanwhile, Center of Excellence for Independent Validators (CEIV) lithium battery certification is expanding. More than 120 organizations are on board, raising the bar across the air cargo supply chain.

CEIV program

IATA's CEIV program celebrated its 10th anniversary in 2024. The success of its first certification, CEIV Pharma, is such that the program extends now to perishables (CEIV Fresh); animal transport (CEIV Live Animals); and, recently, lithium battery carriage (CEIV Li-Batt).

The CEIV program was established to help organizations throughout the air cargo supply chain to achieve operational excellence in the handling and transportation of special cargo.

Airlines, airports and airport communities, freight forwarders, and ground service providers are among the 700 companies that have one or more CEIV certifications. Those certifications cover close to 250,000 trade lanes and some 66 countries. A customer survey reveals that certification helped to

- drive a culture of continuous improvement (99%);
- improve processes and efficiencies (98%);
- comply with regulations (97%); and
- mitigate risks (95%).

Cargo handling

In September 2024, the International Federation of Freight Forwarders Associations (FIATA) endorsed the *IATA Cargo Handling Manual* (*ICHM*) following a yearlong collaboration with IATA.

The *ICHM* provides standardized procedures for airlines, ground handling agents (GHA), and freight forwarders, ensuring consistency and efficiency in cargo processing. By adopting these standards, freight forwarders, airlines, and GHA can better align their operations and leverage their respective expertise to improve the efficiency of the supply chain.

FIATA's endorsement of the *ICHM* furthers IATA's goal of a safer, more efficient air cargo industry. It also signals a new era of cooperation between freight forwarders and airlines, underpinned by a shared commitment to operational excellence.

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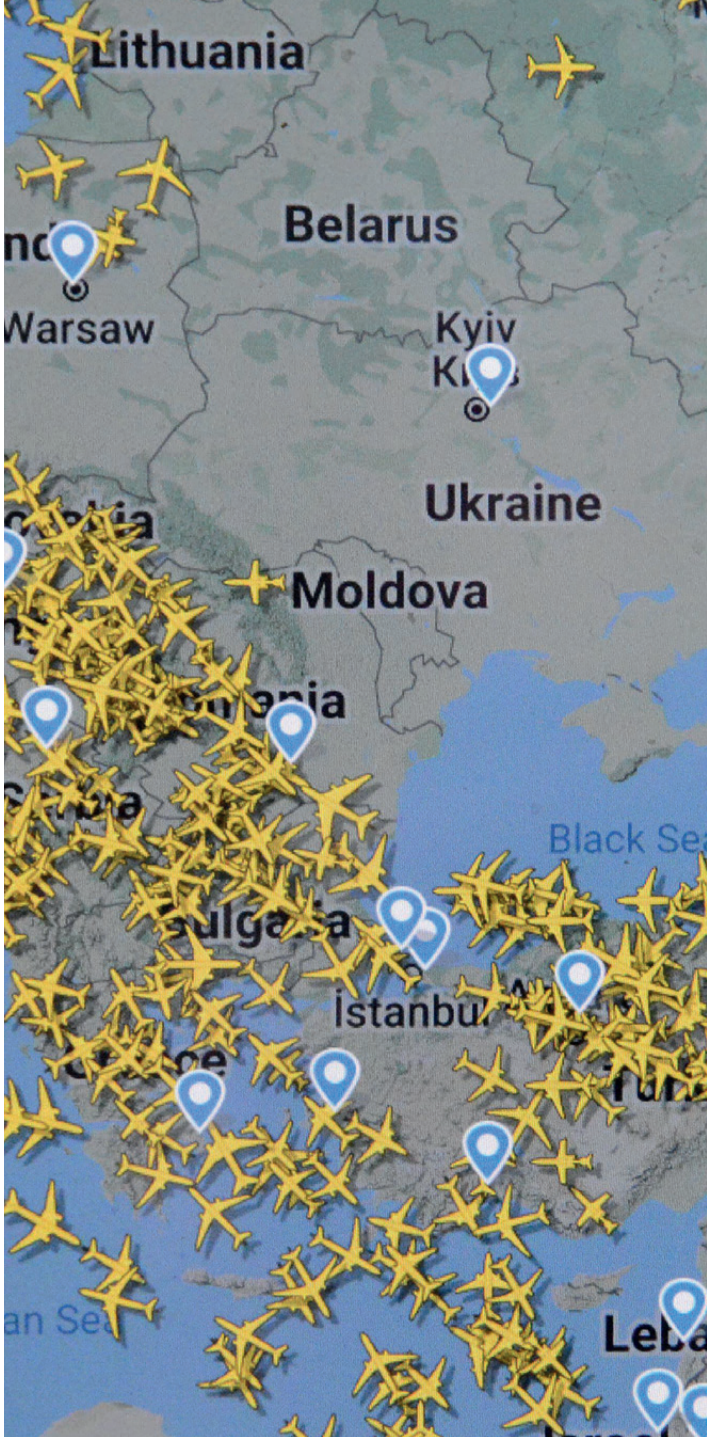
FOCUSING ON SECURITY OUTCOMES

There were numerous security challenges in 2024, from emerging threats to long-standing risks that require innovative approaches and dedicated compliance.



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Interference

A consequence of the turbulent geopolitical environment was the increasingly sophisticated interference in 2024 with global navigation satellite systems (GNSS). Incidents have been particularly intense around conflict zones, but radio frequency interference (RFI) also occurred in such diverse areas as the Baltic Sea and the Arctic. This added unpredictability to an already complex operating environment.

The industry's response necessitates the integration of safety and security disciplines to navigate risk parameters, define tolerances, and strengthen governance. Specifically, the industry must continually assess its exposure to GNSS RFI using the IATA Flight Data Exchange program and other online portals. Safety performance indicators (SPI) for GNSS RFI and aircraft communications, navigation, and surveillance performance degradation would also be useful.

A workshop cohosted in 2024 by IATA and the European Union Aviation Safety Agency (EASA) concluded that the risks to airline security require short-, medium-, and long-term measures. It determined, moreover, that such measures begin with the sharing of incident information and remedies. And it noted that aviation must retain a minimum operational network (MON) of traditional navigation aids to ensure conventional backup in the event of a loss of GNSS navigation.

Conflict zones

The shooting down of an Azerbaijan Airlines civilian flight in December 2024 highlighted the need for better information sharing in and around conflict zones. Enhanced resilience is called for in an environment of evolving threats. And in November 2025, IATA will host an Aviation Security Forum focused on enhancing resilience.

Geopolitical tensions are giving rise to varied risks in diverse regions. In July 2024, for example, an act of unlawful interference occurred in Europe when improvised incendiary devices (IID) were concealed in

"Consultation within the Cargo Security Working Group (CSWG) compelled IATA to draft new guidance material to assist airlines and other aviation stakeholders in implementing mitigation measures to the IID threat."

parcels, which subsequently caught fire, thankfully, prior to being loaded onto an aircraft. The incident highlights growing concerns that air cargo is a target.

The regulatory response to that incident, moreover—comprising mostly additional security measures—raises questions about the efficacy of ICAO Annex 17, which deals with aviation security. This essentially follows a legacy of merely adding measures in the aftermath of other situations rather than considering unforeseen risks. It underscores the need for greater collaboration and transparency in determining and implementing coordinated security measures that address the known and the unknown.

Consultation within the Cargo Security Working Group (CSWG) compelled IATA to draft new guidance material to assist airlines and other aviation stakeholders in implementing mitigation measures to the IID threat. The initial version of that guidance was released in the first quarter of 2025.

ICAO developments

It must be noted that implementing Annex 17 standards, as measured by the ICAO Universal Security Audit Program (USAP), is still useful, albeit with room for improvement.

The second edition of the *ICAO Global Aviation Security Plan* (*GASeP*), released in 2024, emphasizes global cooperation. It prioritizes risk-based, outcome-focused approaches to aviation security and cybersecurity, including adopting innovative strategies, fostering information sharing, and ensuring the application of ICAO standards—all while facilitating passenger and cargo flows. The 2024 Muscat Declaration supports this stance in its call for countries to align

their aviation security and cybersecurity priorities with the second edition of *GASeP*.

IATA reminded the UN Security Council in 2024 of the obligation that countries have to keep flying free from harm. The Chicago Convention explicitly obliges countries to protect civil aircraft and passengers in flight, refrain from the use of force against civil aircraft, and, by corollary, coordinate and communicate any activities potentially hazardous to civil aviation.

There are, furthermore, a variety of legal obligations to ensure that countries protect civil aviation:

- Article 13 of the Universal Declaration of Human Rights protects the freedom of movement domestically and internationally.
- Article 48 of the Fourth Geneva Convention holds that combatants must not target civilian objects.
- Basic norms of customary international law require that all parties to a conflict allow and facilitate the rapid and unimpeded passage of humanitarian relief for civilians in need and ensure the freedom of movement of authorized humanitarian relief personnel.

IATA continues to press individual countries and global authorities to fulfill their obligations to preserve flying's safety and security.

Security management systems

The importance of security management systems (SeMS) was reaffirmed in 2024. SeMS align economic imperatives with service delivery to achieve security outcomes. IATA's introduction in 2024 of SeMs for external service providers (ESP) highlights SeMs growing recognition as an industry standard. IATA has developed extensive guidance, tools, and programs to facilitate the widespread adoption of SeMS among ESP stakeholders.

Also in 2024, IATA launched a program of SeMS Certification. Participating entities can validate and certify their operations based on the latest standards and recommended practices.

SeMS are not yet an ICAO Annex 17 requirement. But they have been required for IOSA-registered airlines since 2007, and ICAO, IATA, and other aviation regulators around the world support their implementation.

Cybersecurity

The CrowdStrike outage in July 2024—even though it turned out to be a faulty update—reminded aviation of the criticality of cybersecurity.

In an unstable geopolitical environment, airlines—often a national symbol—are exposed to sophisticated bad actors. The industry's digital transformation, moreover, heightens risk from data breaches and other cyber threats. Even legacy systems are vulnerable, as they aren't contained like modern systems. So attacks can spread quickly. The advantage of legacy processes is physical data centers, but access management may be complicated.

IATA is enhancing its cybersecurity tools and guidance. Among its offerings is its partnership with the Aviation Information Sharing and Analysis Center (A-ISAC). A-ISAC comprises all partners in the aviation ecosystem and is the primary cybersecurity communications channel for aviation.

IATA also produces a cybersecurity toolkit and emphasizes supplier risk management to ensure best practice across the supply chain. Compliance with the latest data protection standards—such as the European General Data Protection Regulation (GDPR)—is key. Myriad training courses underpin efforts in

this respect and are vital to bringing expertise to the industry.

Digital identity

The rapid adoption of digital identity technologies will enhance aviation security and fundamentally change the passenger experience (see the "Passenger Experience" chapter). There is, however, a need to collaborate on implementing verifiable credentials (VC) and decentralized identifiers (DID). VC and DID standards reinforce security, trust, and efficiency, and IATA is working toward obtaining a recommendation for their industry-wide adoption at the ICAO Assembly later in 2025.

IATA's One ID initiative, meanwhile, promotes globally interoperable digital identity standards. It enables passengers to verify their travel documents before departure and to move through the airport using biometric recognition instead of physical documents. It works in harmony with ICAO's Digital Travel Credential to ensure security, efficiency, privacy, and compliance with global regulations.

Another IATA initiative toward the benefits of digital identity in global aviation is IATA's Aviation Security Trust Framework. It is a digital, standardized approach to managing aviation security compliance across different countries. It uses secure technologies like digital wallets and verifiable credentials to streamline approvals, protect sensitive data, and reduce paperwork. By promoting consistency, collaboration, and global interoperability, the ASTF helps regulators, airlines, and airports improve both security and efficiency.

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CREATING GENDER BALANCE

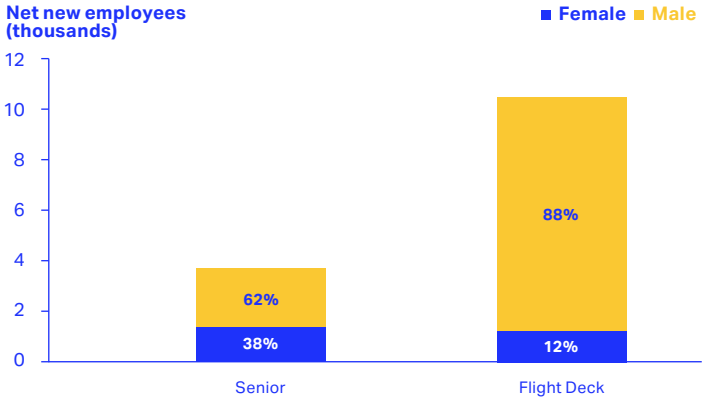
The commitment to diversity, equity, and inclusion (DE&I), especially gender balance, is critical to the aviation industry's growth.

25by2025 is a global initiative led by IATA launched in 2019 to enhance DE&I in the aviation industry. It emphasizes the significance of adopting best practices to foster greater DE&I and gender balance in the aviation sector. The 25by2025 initiative continued its positive impact in this regard in 2024, with signatories growing to 216. Each signatory agrees to improve female representation in the industry by 25% or up to a minimum of 25% by the end of 2025.

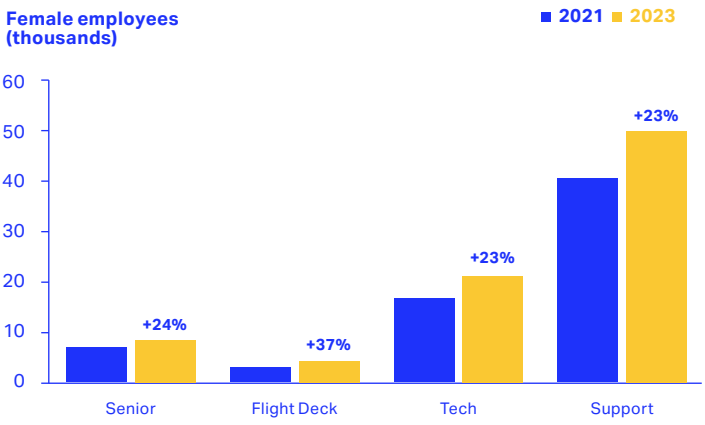
In September 2024, IATA hosted a Global People Forum that attracted participants from every region of the world. This event tackled the broad-based people sustainability agenda, with topics spanning the attraction and retention of talent, the impact of artificial intelligence (AI) on aviation's workforce, and how developments such as AI and more will shape the industry's human resources needs and ensure growth.

The Global People Forum also fostered collaboration on the workforce challenges faced by aviation. The aim is to collectively build an industry in which DEI is embedded and whose personnel are equipped with the skillsets to meet future demands.

Gender share of net new employees in aviation by business type from 2021 to 2023



Share of female employees by type of role



Source: IATA 25by2025 survey

A report, *Gender in Aviation*, released by IATA in 2024 is based on data up to 2023 sourced primarily from signatories to the IATA 25by2025 initiative. The report reveals an increased number of women in senior aviation positions, from 19% in 2019—when 25by2025 launched—to 31% in 2023. It shows, moreover, that, averaged across all aviation-related jobs among reporting 25by2025 entities, female employment in aviation has reached 41%.

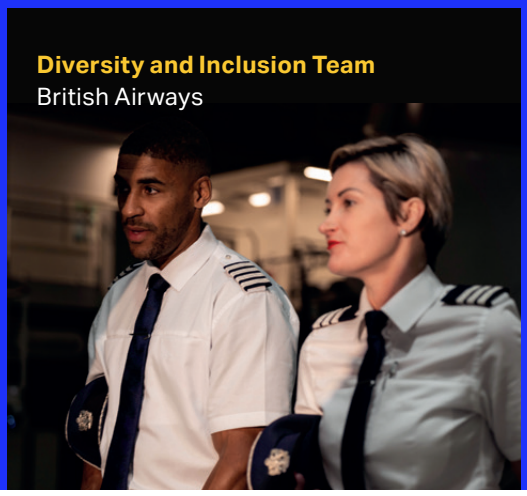
Signatories to 25by2025 demonstrate aviation's commitment to being a great, gender-balanced employment opportunity. The initiative continues until the end of 2025, when final data will be collected and put into a report for delivery in 2026.

Inspirational Role Model
Kendra Kincade, CEO and Founder, Elevate Aviation

THE IATA DIVERSITY AND INCLUSION AWARDS

The IATA Diversity and Inclusion Awards support the advancement of DEI in aviation. They recognize people and parties within our industry making exceptional efforts to foster the change essential to advance gender balance in our workplaces. The awards are sponsored by Qatar Airways and in 2024 saw 32 nominees, from which the following three winners were chosen:

Highflyer
Mafunase Ngosa Malenga, Founder and Managing Director, Southern Africa Institute of Aviation Science and Technology



Diversity and Inclusion Team
British Airways

© BA/Matt Heal, Elate Aviation, Mafunase Ngosa Malenga

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STRENGTHENING THE INDUSTRY'S FINANCIAL BACKBONE

The IATA Financial Settlement Systems (IFSS) include the Billing and Settlement Plan (BSP); the Cargo Account Settlement System (CASS); the IATA Clearing House (ICH); the IATA Currency Clearing Services (ICCS); the Simplified Invoicing and Settlement (SIS); and the Enhancement and Financing (E&F) system. These all are critical in facilitating the swift, secure, and reliable movement of funds across the air travel value chain.

In line with the industry's strong recovery in 2024, the IFSS processed $471.4 billion, excluding $19.1 billion in refunds. This was up 1.7% from $463.5 billion in 2023, or $445.3 billion excluding $18.2 billion in refunds.

The BSP expedites and simplifies the selling, reporting, and remittance procedures of IATA-accredited travel agents and improves financial control and cash flow for approximately 400 participating airlines. In 2024, the BSP processed $232.8 billion, net of $19.1 billion in refunds. This compared with $225.0 billion in 2023, net of refunds. At the close of 2024, there were 155 BSP operations covering 185 countries and

"The readiness of markets will guide the speed of digital currency implementation, and this relies on government regulation."

territories. Their overall, on-time settlement rate was 100.0%, and their unrecovered default rate was 0.007%.

Among BSP operations, digital currency is a fast-evolving topic. Normal money transfers have a physical equivalent. But digital currencies allow for electronic transactions that never assume physical form.

IATA began work in 2024 on incorporating digital currency payments into the BSP. It conducted a trial on implementing the Chinese digital currency, e-CNY, for agent remittance that was successful and is now live. In 2025, IATA aims to complete the circle by enabling reconciliation and payment to airlines with e-CNY.

Important lessons are being learned that will smooth the integration of other digital currencies into the BSP. The aim is to be proactive rather than reactive, ensuring that airlines and agents receive the best-possible service from the use of digital currencies.

The readiness of markets will guide the speed of digital currency implementation, and this relies on government regulation. In China, regulation already validates the country's digital currency.

The CASS simplifies the billing and settling of accounts between airlines and freight forwarders. In 2024, CASS processed $46.6 billion, with an on-time settlement rate of 100%. This contrasts with $42.5 billion in 2023. At the end of 2024, 88 CASS export operations, 9 CASS import operations, and 1 CASS domestic operation were serving 222 general sales and service agents (GSSA), 243 CASS export airlines, and 107 CASS import delivery carriers.

The ICH provides fast, secure, cost-effective settlement services to 558 airlines and associated companies in the aviation value chain. In 2024, the ICH processed $63.8 billion, its highest-ever amount, and had a settlement rate of 100%. It processed $59.0 billion in 2023 and had a financial settlement success rate of 99.99999%, or 0.00001% in unrecovered funds. The ICH's on-time settlement rate was 100% in 2023 and 2024.

The ICCS offers a global cash management system that enables more than 400 airlines to centrally control and repatriate their BSP and CASS sales, including from countries with severe currency liquidity issues. The ICCS processed $41.0 billion in 2024, compared with $38.5 billion in 2023.

As of October 2024, some $1.7 billion in airline funds were blocked from repatriation by governments. Pakistan and Bangladesh were the worst offenders, with Bolivia also a concern.

The SIS is a cost-effective electronic invoicing platform legally compliant with e-invoicing in 44 countries. It enables the exchange of electronic data among airlines and between airlines and direct operating cost suppliers. Its use of a single standard, the IS-XML, simplifies business activity for the industry and allows suppliers to use one invoicing standard for all their airline customers. SIS automation and cost control can save companies up to 2.0% on operating expenses.

In 2024, the SIS had 114,117 participants comprising 482 airlines; 460 suppliers; 2,261 other entities, such as air operators, GSSA and general sales agents (GSA), and more; and 110,914 IATA-accredited agents. It processed over 1.65 million interline and supplier invoices during 2024, up 9.0% compared with 2023, and settled more than $83 billion, compared with $76.4 billion in 2023.

The E&F service gives air navigation service providers (ANSP) and airports access to IATA's globally trusted systems and processes for accurate billing data, standardized e-invoices that can be automatically validated, and secure fund collection. The E&F helps airlines avoid late payment penalties, reconciliation issues, and disputes through a standardized billing process with a single point of contact for questions or irregularities. In 2024, the E&F processed $4.2 billion, compared with $3.7 billion in 2023.

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