



IATA

Annual Review 2023

V43

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International Air Transport Association
Annual Review 2023
79th Annual General Meeting and
World Air Transport Summit, İstanbul, Türkiye

Members' list



ABX Air
Aegean Airlines
Aer Lingus
Aero Republica
Aeroflot
Aerolineas Argentinas
Aeromexico
Africa World Airlines
Afrijet
Air Algerie
Air Arabia
Air Astana
Air Austral
Air Baltic
Air Botswana
Air Burkina
Air Cairo
Air Caledonie
Air Canada
Air Caraibes
Air Changan
Air China
Air Corsica
Air Dolomiti
Air Europa
Air France
Air Guilin
Air India
Air Koryo
Air Macau
Air Madagascar
Air Malta
Air Mauritius
Air Moldova
Air New Zealand
Air Niugini
Air Nostrum
Air Peace
Air Serbia
Air Seychelles
Air Tahiti
Air Tahiti Nui
Air Tanzania
Air Transat
Air Vanuatu
AirBridgeCargo Airlines
Aircalin
Airlink
Alaska Airlines
Albastar
Allied Air

AlMasria Universal Airlines
Amapola Flyg
Amelia (Regourd Aviation)
American Airlines
ANA
APG Airlines
Arkia Israeli Airlines
Asiana Airlines
ASKY
ASL Airlines Belgium
ASL Airlines France
ASL Airlines Ireland
Atlantic Airways
Atlas Air
Austrian
Avianca
Avianca Costa Rica
Avianca Ecuador
Azerbaijan Airlines
Azores Airlines
Azul Brazilian Airlines



Badr Airlines
Bahamasair
Bamboo Airways
Bangkok Airways
Batik Air
Batik Air Malaysia
Belavia Belarusian Airlines
Biman Bangladesh Airlines
Binter Canarias
BoA Boliviana de Aviacion
Braathens Regional Airways
British Airways
Brussels Airlines
Bulgaria Air



Camair-Co
Cambodia Angkor Air
Capital Airlines
Cargojet Airways
Cargolux
Caribbean Airlines
Carpatair

Cathay Pacific
Cebu Pacific
CemAir
Challenge Airlines (BE)
Challenge Airlines (IL)
China Airlines
China Cargo Airlines
China Eastern
China Express Airlines
China Postal Airlines
China Southern Airlines
CityJet
Condor
Congo Airways
Copa Airlines
Corendon Airlines
Corsair International
Croatia Airlines
Cubana
Cyprus Airways
Czech Airlines



Delta Air Lines
DHL Air
DHL Aviation

Eastern Airlines
Eastern Airways
Edelweiss Air
Egyptair
EL AL
Emirates
Ethiopian Airlines
Etihad Airways
EuroAtlantic Airways
European Air Transport
Eurowings
EVA Air



FedEx Express
Fiji Airways
Finnair
Fly Baghdad
flydubai

FlyEgypt
Flynas
Flyone
Freebird Airlines
French Bee
Fuzhou Airlines



Garuda Indonesia
Georgian Airways
German Airways
GlobalX
GOL Linhas Aereas
Gulf Air
GX Airlines



Hahn Air
Hainan Airlines
Hawaiian Airlines
Hebei Airlines
Hi Fly
Hong Kong Air Cargo
Hong Kong Airlines
Hong Kong Express Airways



Iberia
Iberojet Airlines
Icelandair
IndiGo
Iran Air
Iran Airtour Airline
Iran Aseman Airlines
Israir
ITA Airways



Japan Airlines
Japan Transocean Air
Jazeera Airways
Jeju Air
JetBlue
Jin Air
Jordan Aviation
Juneyao Airlines



Kam Air
Kenya Airways
KLM
Korean Air
Kunming Airlines
Kuwait Airways



La Compagnie
LAM
Lao Airlines
LATAM Airlines Brasil
LATAM Airlines Colombia
LATAM Airlines Ecuador
LATAM Airlines Group
LATAM Airlines Paraguay
LATAM Airlines Peru
LATAM Cargo Brasil
LATAM Cargo Chile
Loong Air
LOT Polish Airlines
Lucky Air
Lufthansa
Lufthansa Cargo
Lufthansa CityLine
Luxair



Malaysia Airlines
Mandarin Airlines
Martinair Cargo
MasAir
Mauritania Airlines International
MEA
MIAT Mongolian Airlines
MNG Airlines
Myanmar Airways International
Myanmar National Airlines



National Airlines
Neos
Nesma Airlines
Nile Air
Nippon Cargo Airlines
NordStar
Nordwind Airlines
Nouvelair



Okay Airways
Olympic Air
Oman Air
Overland Airways



Pakistan International Airlines
Paranair
Pegas Fly
Pegasus Airlines
PGA Portugalia Airlines
Philippine Airlines
Polar Air Cargo
Poste Air Cargo
Precision Air
Privilege Style



Qantas
Qatar Airways
Qazaq Air



Ravn Alaska
Rossiya Airlines
Royal Air Maroc
Royal Brunei
Royal Jordanian
Ruili Airlines
RusLine
RwandAir



S7 Airlines
Safair
SAS
SATA Air Acores
Saudi Arabian Airlines
SCAT Airlines
Scoot
SF Airlines
Shandong Airlines
Shanghai Airlines
Shenzhen Airlines
Sichuan Airlines
Silk Way West Airlines
Singapore Airlines
SKY Airline
Smartavia
Smartwings

Solomon Airlines

Somon Air

South African Airways

SpiceJet

SriLankan Airlines

SunExpress

Suparna Airlines

SWISS

Syrianair

W

Wamos Air

West Air

WestJet

White Airways

Wideroe

World 2 Fly

Xiamen Airlines

YTO Cargo Airlines

Ukraine International Airlines

UNI AIR

United Airlines

UPS Airlines

Ural Airlines

Urumqi Air

UTair

Uzbekistan Airways

Vietjet

Vietnam Airlines

Virgin Atlantic

Virgin Australia

Vistara

Voepass Linhas Aereas

Volaris

Volotea

Vueling



National Airlines
Neos
Nesma Airlines
Nile Air
Nippon Cargo Airlines
NordStar
Nordwind Airlines
Nouvelair



Okay Airways
Olympic Air
Oman Air
Overland Airways



Pakistan International Airlines
Paranair
Pegas Fly
Pegasus Airlines
PGA Portugalia Airlines
Philippine Airlines
Polar Air Cargo
Poste Air Cargo
Precision Air
Privilege Style



Qantas
Qatar Airways
Qazaq Air



Ravn Alaska
Rossiya Airlines
Royal Air Maroc
Royal Brunei
Royal Jordanian
Ruili Airlines
RusLine
RwandAir

S7 Airlines
Safair
SAS
SATA Air Acores
Saudi Arabian Airlines
SCAT Airlines
Scoot
SF Airlines
Shandong Airlines
Shanghai Airlines
Shenzhen Airlines
Sichuan Airlines
Silk Way West Airlines
Singapore Airlines
SKY Airline
Smartavia
Smartwings

TAAG Angola Airlines
TACA
TAG Airlines
TAP Air Portugal
TAROM
Tassili Airlines
Thai Airways International
Thai Lion Air
Thai Smile
Tianjin Airlines
TUIfly
Tunisair
Turkish Airlines
T'way Air

Ukraine International Airlines
UNI AIR
United Airlines
UPS Airlines
Ural Airlines
Urumqi Air
UTair
Uzbekistan Airways

Vietjet
Vietnam Airlines
Virgin Atlantic
Virgin Australia
Vistara
Voepass Linhas Aereas
Volaris
Volotea
Vueling

Wamos Air
West Air
WestJet
White Airways
Wideroe
World 2 Fly

Xiamen Airlines

YTO Cargo Airlines



WILLIE WALSH, DIRECTOR GENERAL

Growing stronger as an association and an industry

As the COVID-19 pandemic receded, the world rapidly reconnected using air travel.

Throughout 2022, countries progressively eased or ended travel restrictions, with China being the last major market to do so. The desire of people to resume travel has been

truly impressive, with traveler numbers rebounding further with every new border opening. Globally, passenger demand is not expected to fully return to pre-COVID-19 levels until 2024, but rapid progress was already clearly evident as 2022 closed.

Air cargo's performance took a different route. The sector was a

lifeline during the COVID-19 crisis. At its peak in 2021, volumes and revenues were tracking above pre-pandemic levels. Economic uncertainties and government measures to tame inflation have taken their toll. With global trade falling, air cargo volumes slipped below 2019 levels. Nonetheless, revenues have stayed strong. Air cargo's contribution to airline revenues in 2022 was 17% of total revenues, considerably higher than the 12% in 2019.

After a cumulative loss of over \$180 billion over the 2020–2022 period, the airline industry is on track to post a collective profit in 2023.

The industry performed well on key challenges in 2022.

Sustainability: The adoption of the Long-Term Aspirational Goal at the 41st Assembly of the International Civil Aviation Organization (ICAO), aligned governments with the industry's commitment to achieve net zero carbon emissions by 2050. The ICAO Assembly also reset the baseline for the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to 85% of 2019 emissions, with the promise that it would be the sole financial measure applied to manage emissions from international operations.

The industry now expects governments to deliver policies enabling aviation's energy

transition and upholding the integrity of CORSIA. To date, however, we have not seen governments providing sufficient production incentives to ramp up the supply of sustainable aviation fuels (SAF). And many governments, including several in Europe, are contemplating placing additional financial burdens on aviation in the name of the environment that will undermine CORSIA and reduce the industry's financial capacity to invest in sustainability efforts.

Safety: The industry's safety performance in 2022 exceeded 2021 and the five-year average (2018–2022) on several key metrics. A key indicator of this performance is the reduction in fatality risk, which was 0.11 in 2022, below the five-year average of 0.13. Importantly, the IATA Operational Safety Audit (IOSA) remains a valuable tool in the industry's safety efforts. In 2022, the performance of airlines on the registry (measured by the accident rate) was four times better than carriers not on the registry.

As the audit marks its 20th year, the program is being renewed with a risk-based focus that will strengthen its effectiveness.

Diversity and Inclusion: IATA's flagship 25by2025 initiative to improve gender balance in aviation has grown to include 176 signatories. The most remarkable gain reported by the signatories

"To date we have not seen governments providing sufficient production incentives to ramp up the supply of sustainable aviation fuels (SAF)."

is an increase in technical roles performed by women from 12% in 2021 to 18% in 2022. Across IATA's membership, the number of female CEOs continues to grow, reaching 28. These developments are a beacon of change for the entire industry.

Advocacy: On the advocacy front, there is continuous effort to remind governments of the importance of policies and regulations that enable safe, efficient and sustainable operations. Public opinion polling reveals an understanding that aviation is a critical economic contributor (90%), that it provides customers with good value for money (77%), and is a key contributor to the UN's Sustainable Development Goals (82%).

Government actions, however, do not reflect this. The Netherlands, for example, is a perfect storm of value-destroying regulatory efforts. IATA joined forces with other industry stakeholders in a legal action that has temporarily halted the government's plan to slash Schiphol Airport's capacity by 12%, ostensibly to manage noise impact. The government also tripled its passenger tax to €26.43. And despite severe operational chaos at Schiphol in 2022, the government is rewarding the airport by allowing it to continue a massive 37%

increase in user charges over three years. And to top it off, the government plans to reduce ground handling competition.

The under-appreciation of aviation is, of course, not limited to the Netherlands. We must remain vigilant in all locations to ensure that airlines are supported by policies that are aligned with global standards and which facilitate our important role in social and economic development the world over.

Your association

IATA remains dedicated to supporting the industry with the high-performing IATA Financial Settlement Systems. In 2022 the IFSS processed \$363.3 billion excluding \$18.5 billion in refunds. It did so while maintaining extremely high levels of efficiency and security.

IATA's own finances are strong, and membership is growing. Some 304 carriers spread around the world and covering every business model are counted in the IATA fold.

Lastly, I am proud to lead a talented, diverse, and global IATA team that is at your service with reliable products, effective advocacy and critical global standards.

**Willie Walsh,
Director General**



"IATA remains dedicated to supporting the industry with the high-performing IATA Financial Settlement Systems."



MEHMET T. NANE, CHAIR OF THE IATA BOARD OF GOVERNORS

Policy support from governments is vital

Q What has been the focus of your year as Chair of the IATA Board of Governors?

It has been an honor to serve as IATA's Chair of the Board of Governors, especially at a time when the industry was emerging from its worst downturn. As we have continued to rebuild global connectivity at great pace, we have been addressing such priorities as sustainability, diversity, regulation, operational challenges, and infrastructure costs.

My tenure as Chair primarily focused on three areas. First, our external focus was on the industry's recovery after the pandemic-induced shutdown. We emphasized the significance of reinstating connectivity to government and collaboration with industry partners to facilitate a smooth restart of markets. Despite encountering some challenges at certain airports and with Air Navigation Service Providers (ANSPs), the industry as a whole successfully resumed operations.

Second, IATA also made significant progress in its commitment to achieving net zero carbon emissions. We engaged in substantial behind-the-scenes efforts to outline detailed pathways toward reaching net zero. Additionally, we held discussions with governments to advocate for increased policy support for sustainable aviation fuels (SAF). In 2022, the International Civil Aviation Organization (ICAO) adopted a Long-Term Aspirational Goal (LTAG) for 2050 net zero carbon emissions, and this made aviation a unique sector where both the industry and the regulating states are committed to one target.



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Third, diversity and broadening IATA's membership have been other strong focuses and 2022 was a particularly important year as we achieved the milestone of 50% of IATA members joining the 25by2025 voluntary initiative. This will drive a more diverse and inclusive aviation industry particularly regarding female representation. We are witnessing real change. From a handful of female airline CEOs just a few years ago, there were 28 among IATA member airlines as of March 2023.

Internally, I also worked alongside Willie, the Board, and IATA senior management to ensure that IATA effectively serves its members and delivers value. We acknowledge and appreciate the hard work of the entire IATA team, while at the same time, seeking opportunities to foster innovation, responsiveness, and a stronger advocacy for the industry we love.

Q Is the value of aviation appreciated sufficiently by governments? What can we do to get better policies for supporting aviation's success?

We do see broad support for the industry considering the economic, social, and strategic importance of aviation. However, there are certainly areas in which we would like to see better policies in place to support aviation's success, especially as we need to work ever closer to develop a more sustainable industry. As well as the need to expand investment in efficient infrastructure and air traffic management systems, it's essential that governments develop a more unified global regulatory framework and fair taxation system. Indeed, the pandemic period brought this need further into the spotlight.

When it comes to operational efficiencies, it is crucial for governments to play their part. The Single European Sky (SES) initiative, which could reduce Europe's air transport emissions up to 10% using existing technology, has not been effectively implemented. Furthermore, billions in European



"Diversity and broadening IATA's membership have been other strong focuses and 2022 was a particularly important year."

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environment taxes have not contributed to SES, SAF usage, or emission reductions. These taxes simply make flying more expensive without enhancing aviation efficiency or addressing environmental concerns.

In contrast, airlines have shown commitment by investing \$17 billion in forward purchase SAF agreements in 2022 alone. Regardless of price, airlines have utilized all available SAF. Encouragingly, the demand from airlines prompted a significant increase in SAF production in 2022 with the prospect of reaching 30 billion liters of SAF in 2030. Although there is undeniable momentum, there is still work to be done, and government policies will play a crucial role in shaping the future of sustainable aviation.

Fuel is the greatest challenge in our path toward decarbonizing aviation as SAF remain limited in availability

and significantly more expensive than conventional jet fuel. Governments should assess the significance of locally producing SAF, offer incentives to boost production, ensure affordability and encourage adoption for airlines. These actions will be incremental in moving towards our net zero target.

Q What do you see as the immediate and longer-term challenges facing airline leaders?

Aviation leaders face many challenges. In the short term, we have a variety of economic challenges, especially the global inflationary pressures. Geopolitical crises continue to affect the world, destabilizing globalization and threatening global supply chains. The airline industry is having to fix balance sheets carrying debts of \$650 billion, requiring strategic measures to stabilize and strengthen financial positions.



In the longer term, the path to realize the commitment to net zero carbon emissions also comes with its challenges, together with the pace of digital transformation, and regulatory challenges to ensure airlines remain competitive and resilient in the evolving aviation industry. But there's certainly room for optimism, particularly when we see how strong the pace of recovery has been from aviation's worst downturn in living memory.

Q What role did aviation play in the aftermath of the tragic earthquake that hit parts of Türkiye and Syria earlier this year and what did you learn from being on the front line?

Airlines play a vital role during natural disasters by providing transport, facilitating evacuation and rescue efforts, and delivering aid. With their flight networks and fleet, they can quickly deploy resources, assisting in the prompt delivery of aid to the impacted regions.

We are experiencing challenging times as a country. The pain we felt in the aftermath of the earthquake catastrophe on 6 February 2023 is still fresh. I would like to again commemorate those who lost their lives—may they rest in peace—and wish a swift recovery to the injured.

Aviation played a significant role in the immediate aftermath. From the moment that the earthquake

occurred, airlines across the world rallied to help. At least 3,500 tons of aid from over 90 countries was flown in. Pegasus Airlines alone evacuated 157,000 people from the earthquake zone, transported 110 tons of aid materials at no cost and facilitated the transportation of more than 120,000 people and rescue teams to the disaster zone.

These efforts highlight the vital role that airlines and aviation play during times of crises. We recognise the need for long-term solidarity and, as the Pegasus Team, alongside many others in the aviation and travel sector, we continue to do our part in assistance efforts, to sustain this support on a long-term basis.

Q Is the industry doing enough to promote diversity?

Lack of female representation in aviation, a traditionally male dominated industry, remains a significant issue. Although there have been notable advancements in promoting diversity, there is still much work to be done. According to FlightGlobal's latest research of women in the C-suite, although the number of women CEOs among the top 100 passenger carriers has increased from 6 to 12 in the past year, indicating a positive trend, there has been a decline in female representation in other C-level positions, highlighting the need for continued efforts. Achieving gender balance is not limited to C-level roles, but extends to all professions, including pilots, technicians, and beyond. Diversity also extends beyond gender balance. It means ensuring that every voice is heard and valued, as diverse perspectives bring immense value to the industry.

Role models play a crucial role in inspiring and empowering people from diverse backgrounds to pursue careers in aviation, and it is also important to reach the young. Indeed, it is good to see that many companies are taking steps to increase female employment through Cadet Pilot training programs and young talent programs. At Pegasus Airlines, we

"From the moment that the earthquake occurred, airlines across the world rallied to help."

are proud to have Mrs. Gülistan Öztürk, who has devoted herself to this industry for such a long time, as our CEO. She serves as a fantastic role model and an advocate for gender equality and creates valuable opportunities for other women.

Numerous initiatives and programs are being implemented to address the gender gap and promote diversity and inclusivity in the labor market. Sustained commitment and ongoing actions are essential to creating a more balanced and equitable representation. IATA's 25by2025 pledge, aiming for a 25% increase in female representation in senior managerial roles by 2025, is a significant target in addressing gender imbalance, but this is just the starting point. The ultimate goal should be achieving equal representation of women, so the aim is to reach 50% in the future. The industry must commit to continuing its efforts and to provide opportunities for leadership development and career growth.

Q As a low-cost carrier, what value do you get from IATA membership? And do you see potential for more LCCs to join?

From lobbying efforts to training programs, I believe IATA offers value to all airlines. It addresses the needs of, and challenges faced by, low-cost airlines, including advocating for policies that promote a competitive and sustainable operating environment. IATA also tackles aviation's vital priorities in sustainability, diversity, regulation, and managing operational challenges and infrastructure costs. I would certainly encourage and welcome more LCCs joining.

**Mehmet T. Nane,
Chair of the IATA
Board of Governors**

MEMBERSHIP OF THE BOARD OF GOVERNORS

As at 15 May 2023

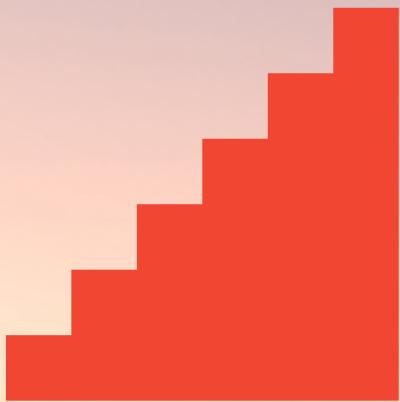
1. Michael Rousseau President and Chief Executive Officer AIR CANADA	16. Marjan Rintel President and Chief Executive Officer KLM	28. Ahmet Bolat Chairman of the Board of Directors and Executive Committee TURKISH AIRLINES
2. Benjamin Smith Chief Executive Officer AIR FRANCE-KLM GROUP (representing Air France)	17. Walter Cho Chairman and Chief Executive Officer KOREAN AIR	29. Scott Kirby Chief Executive Officer UNITED AIRLINES
3. Robert Isom Chief Executive Officer AMERICAN AIRLINES	18. Roberto Alvo Chief Executive Officer LATAM AIRLINES GROUP	30. Enrique Javier Beltranena Mejicono President and Chief Executive Officer VOLARIS
4. Shinichi Inoue President and Chief Executive Officer ANA	19. Carsten Spohr Chairman and Chief Executive Officer LUFTHANSA	ALSO SERVED
5. John Dietrich President and Chief Executive Officer ATLAS AIR	20. Izham Ismail Group Chief Executive Officer MALAYSIA AIRLINES	(To 20 June 2022) Mr Liu Shaoyong, Chairman, CHINA EASTERN AIRLINES
6. Patrick Healy Chair CATHAY PACIFIC	21. Mohamad El-Hout Chairman and Director General MIDDLE EAST AIRLINES	Mr Donald Coleran, President and Chief Executive Officer, FEDEX EXPRESS
7. Ma Xulun Chairman CHINA SOUTHERN AIRLINES	22. Mehmet Tevfik Nane Board Chair Chairperson of the Board of Directors PEGASUS AIRLINES	Mr Ajay Singh, Chairman and Managing Director, SPICEJET
8. Pedro Heilbron Chief Executive Officer COPA AIRLINES	23. Akbar Al Baker Group Chief Executive QATAR AIRWAYS	(To 6 September 2022) Ronojoy Dutta, Chief Executive Officer, INDIGO
9. Mesfin Tassew Bekele Chief Executive Officer ETHIOPIAN AIRLINES	24. Abdelhamid Addou Chairman and Chief Executive Officer ROYAL AIR MAROC	(To 7 November 2022) Douglas Parker, Chairman, AMERICAN AIRLINES
10. Topi Manner President and Chief Executive Officer FINNAIR	25. Yvonne Manzi Makolo Chief Executive Officer RWANDAIR	(To 1 January 2023) Tang Kin Wing Augustus, Chief Executive Officer, CATHAY PACIFIC
11. Zhu Tao President HAINAN AIRLINES	26. Ibrahim Al-Omar Director General SAUDI ARABIAN AIRLINES	(To 14 April 2023) Christine Ourmières-Widener, Chief Executive Officer, TAP AIR PORTUGAL
12. Luis Gallego Martín Chief Executive Officer IAG (representing Iberia)	27. Goh Choon Phong Chief Executive Officer SINGAPORE AIRLINES	
13. Pieter Elbers Chief Executive Officer INDIGO	14. Yuji Akasaka Representative Director, President JAPAN AIRLINES	
15. Robin Hayes President and Chief Executive Officer JETBLUE		





ECONOMICS

Aviation faces a challenging economic environment



Economics

12

Aviation faces a challenging economic environment

Resilience and strong recovery

In 2022, COVID-related travel restrictions lifted further though aviation and the global economy continued to face significant challenges. Renewed COVID-19 outbreaks in certain economies, particularly China, led to waves of lockdowns. Russia's invasion of Ukraine disrupted food and energy supplies, driving consumer prices higher and exacerbating inflationary pressures that had built up during the pandemic. To combat persistent high inflation, central banks rapidly raised interest rates, resulting in tightened global financial markets and increased pressure on high debt levels.

Despite these challenges, headline inflation declined, reflecting some of the desired effects of interest rate hikes. The unemployment rate in OECD countries also remained low at 4.9%, indicating a robust job market and strong purchasing power.

As 2023 progressed, travel restrictions waned and China's economy showed signs of recovery following the end of zero-COVID measures, along with the removal of most testing requirements for international travelers. The developments in China are expected to increase air traffic demand globally and ease supply chain disruptions. The global GDP growth rate for 2022 is estimated at 3.4%, and a forecasted rate of 2.8% for 2023 suggests a continued expansion, albeit at a more moderate pace.

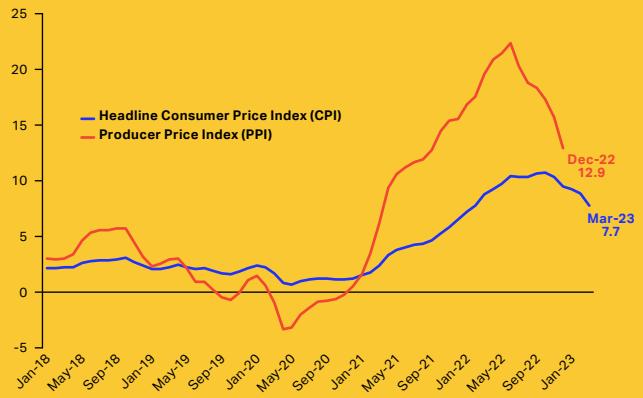
 01 Source: IATA S&E Economics, using data from OECD

Industry cost pressures remain high

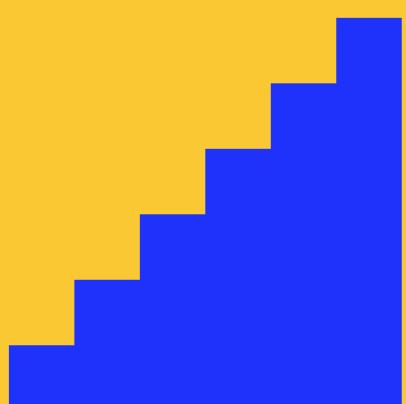
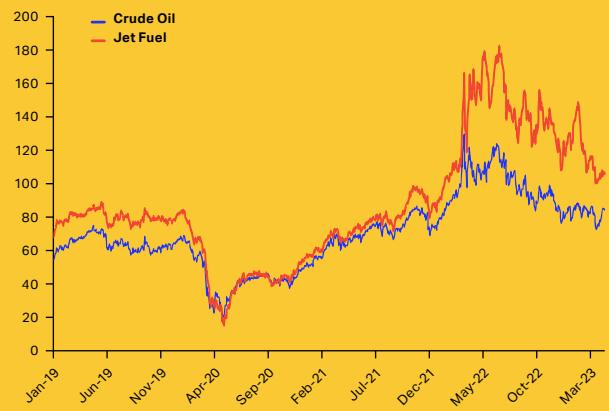
Following Russia's invasion of Ukraine in February 2022, the crude oil price exceeded \$120 per barrel for the first time in a decade. Air travel demand continued to recover over the same period, which increased demand for jet fuel while refinery capacity remained limited. This increased the crack spread between the price of crude oil and the price of jet fuel to historic highs of more than \$60 per barrel during the summer of 2022. Although oil prices have come down from their peak, they remain at elevated levels. Airlines continue to adjust their operational strategies and invest in newer aircraft to improve fuel efficiency and reduce their carbon footprint. Rising labor and input costs, however, along with higher interest rates, continue to pose significant challenges to the industry's profitability. The moderate performance of the global economy might ease demand for oil, but the balance of risks is skewed to the downside for the industry.

 02 Source: IATA S&E Economics, using data from S&P Global, Macrobond

01 Headline CPI and PPI (% change year-on-year), OECD Countries



02 Crude oil (Brent) and jet fuel price (USD/Bbl)



Air passenger markets

Global passenger traffic recovery accelerates
 Numerous countries continued to ease travel restrictions in 2022, resulting in a reduction in policy stringency at a global scale. On the back of this development, the number of air passengers continued to grow worldwide and approached pre-pandemic levels, demonstrating the eagerness of travelers to fly again. Nevertheless, the recovery of international air travel was still constrained by uncoordinated policies and lingering restrictions in different markets.

Industry-wide revenue passenger kilometers (RPKs) increased significantly from 41.7% of 2019 RPKs in 2021 to 68.5% in 2022. The growth in international RPKs powered most of the recovery momentum in 2022 as domestic traffic worldwide experienced an earlier recovery and slower growth since the second half of 2021. In the first quarter of 2023, the recovery accelerated as China reopened its economy. Industry total RPKs reached 88.0% of their 2019 levels in March 2023, a significant improvement largely attributable to the developments on the domestic side.

03 Source: IATA S&E Economics, using data from IATA Monthly Statistics, Oxford Coronavirus Government Response Tracker (OxCGRT)

Notes: The stringency index is a composite measure of nine response indicators including workplace and school closures, as well as travel bans (Jan 2020 stringency = 100).

International traffic recovery caught up with domestic in 2022

During the pandemic, travel restrictions had the greatest impact on international air passenger numbers. International traffic consequently was slower to recover than domestic travel, which offered more certainty and less constraints to travelers.

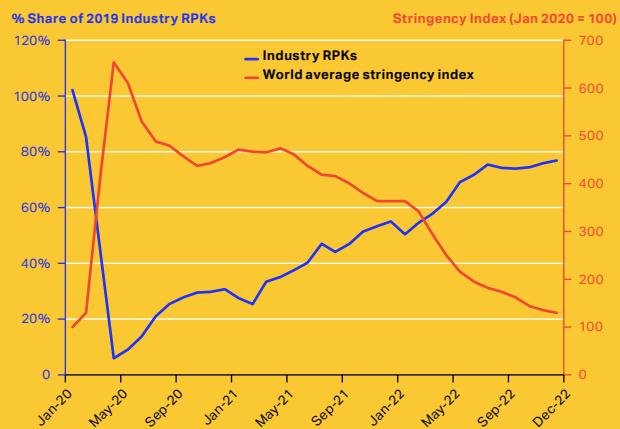
The gradual reopening of travel markets worldwide was supported by the rollout of vaccines and evidence revealing the ineffectiveness of travel restrictions in controlling the COVID-19 virus. In 2022, the easing of travel policies significantly improved international passenger flows, particularly in Asia-Pacific.

Although international passenger traffic faced setbacks in early 2022 due to travel restrictions, the willingness of passengers to travel was demonstrated globally by the rapid increase in international revenue passenger kilometers (RPKs) whenever and wherever travel restrictions were lifted. As 2022 progressed, international traffic started to catch up with domestic traffic, increasing from 24.6% of pre-pandemic levels in 2021 to 62.1% in 2022.

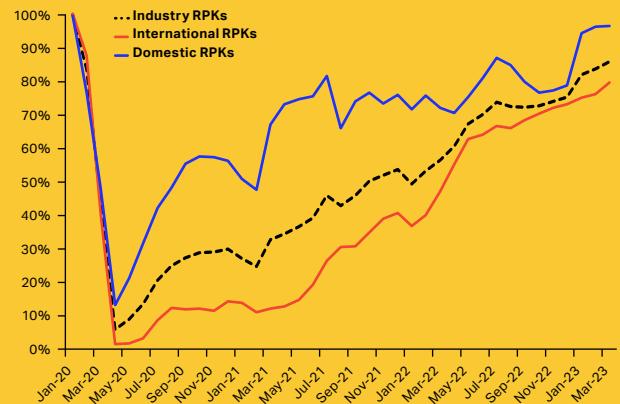
The recovery in international traffic continued in the first quarter of 2023 and in March 2023 reached 81.6% of March 2019 levels.

04 Source: IATA S&E Economics, using data from IATA Monthly Statistics

03 Industry total revenue passenger-kilometers (RPKs) as % share of 2019 levels, World Stringency Index, indexed to January 2020



04 International and Domestic total revenue passenger-kilometers (RPKs), % share of 2019



Uneven recovery across regions

Reflecting the inconsistent levels of virus control and outbreaks, regions faced various outcomes in traffic growth in 2022 and early 2023. Notably, in Asia-Pacific, international traffic lagged other regions and only made substantial progress beginning in March 2022, when concerns related to the Omicron variant subsided.

 05 Source: IATA S&E Economics, using data from IATA Monthly Statistics

Routes connecting various regions to the Americas have led the recovery in international RPKs. Due to the slow reopening of China and Japan, traffic on routes between Asia-Pacific and the rest of the world has recovered slower than traffic on other major routes. China's international RPKs recovered at a significantly slower rate compared with the traffic rebound in other Asia-Pacific countries. The reopening of China is expected to accelerate the rebound in the region as some markets from and to China were among the largest international markets in 2019.

The ongoing war in Ukraine continues to impact international operations due to airspace closures and traffic diversions. The closure of the Russian airspace has affected airlines from almost 40 countries, with the most heavily hit markets being Europe-Asia and Asia-North America. As the airspace closures required flights to be rerouted or cancelled, they had a direct impact on RPKs.

 **06** Source: IATA S&E Economics, using data from IATA Monthly Statistics

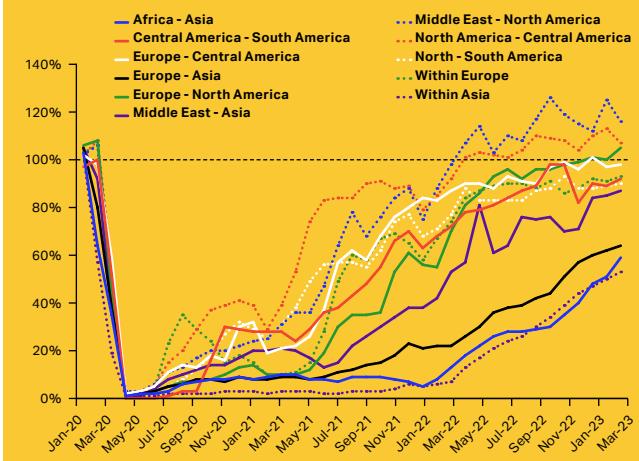
Highlighting the different trends that the regions have experienced, domestic traffic rebounded quickly in most airline regions but was inconsistent in the rate of growth. In 2022, airlines from Europe, Latin America, and the Middle East surpassed 2019 traffic levels. By the end of 2022, industry-wide domestic RPKs were within 20% of full recovery.

Following the swift domestic traffic recovery in China, domestic RPKs performed by Asia-Pacific airlines increased substantially and caught up with carriers registered in other regions. This led to a surge in the recovery of total domestic RPKs, jumping from 80.5% of 2019 levels in December 2022 to 98.9% in March 2023.

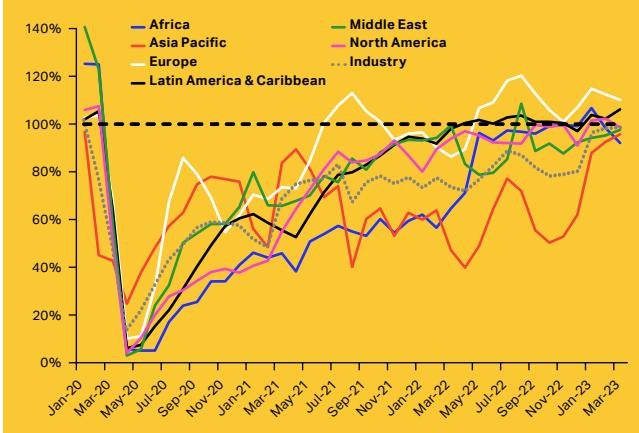
 07 Source: IATA S&E Economics, using data from IATA Monthly Statistics



06 International revenue passenger-kilometers (RPKs) by route area, % share of 2019 level



07 Domestic revenue passenger-kilometers (RPKs) by airline region of registration, % share of 2019



Air cargo markets

Air cargo demand softened

After an exceptional performance in 2021, air cargo demand declined 8.0% in 2022 due to several challenges throughout the year. Inflation reached historical highs, curtailing the spending capacity of households and reducing trade, and the ongoing war in Ukraine further disrupted trade flows. The unusual strength of the US dollar also made certain commodities more expensive in local currency terms. Compared to the pre-pandemic period, industry cargo tonne kilometers (CTKs) in 2022 tracked close to their 2019 levels, contracting 1.6%. North America and Africa were the only two regions with CTKs above 2019 levels throughout the year. Airlines in Latin America recovered following the lengthy restructuring processes in 2021 and their cargo traffic is close to pre-pandemic levels.

08 Source: IATA S&E Economics, using data from IATA Monthly Statistics

Global trade growth outperformed air cargo demand

Global goods trade continued to rise from January to October 2022, albeit at a slower pace than in 2021. In contrast, air cargo CTKs experienced twelve consecutive months of contractions beginning in March 2022, suggesting that the growth of global trade benefitted maritime transportation more than air transportation. As the demand for goods softened compared with the previous year, businesses experienced less inventory pressure to fulfill orders, reducing their need to use air transportation to replenish stocks quickly.

09 Source: IATA S&E Economics, using data from IATA Monthly Statistics and Netherlands CPB

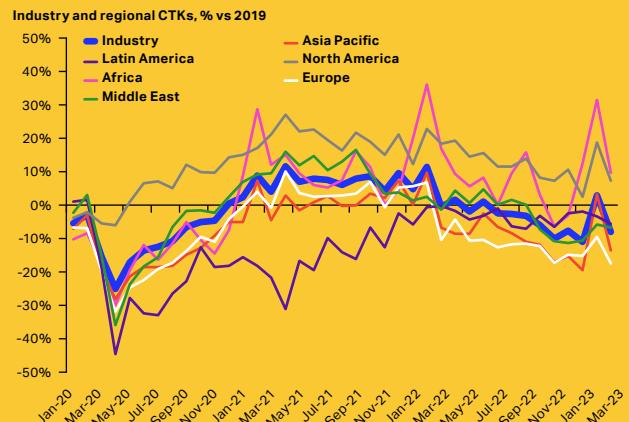
Declining cargo load factors put downward pressure on cargo yields

Due to increased capacity and lower demand, cargo load factors dropped back to their pre-COVID range. The rise in air cargo capacity has largely been driven by the restoration of belly capacity from passenger aircraft since May 2021, while the capacity of dedicated freighters has been declining since December 2021.

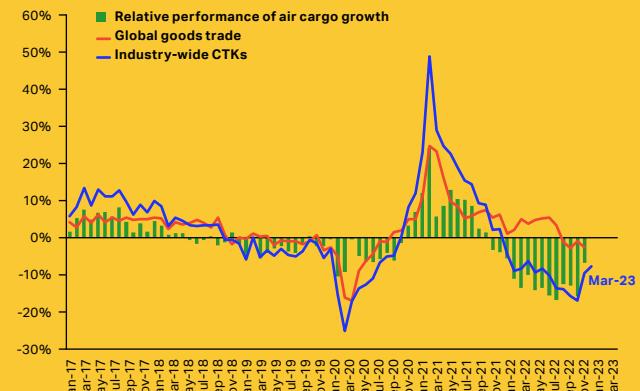
Although air cargo yields reached an all-time high in December 2021, they started to fall for most of 2022. Yields are still higher than their pre-COVID levels. But given that load factors are back to their normal range, the downward trend in yields may continue well into 2023.

10 Source: IATA S&E Economics, using data from IATA CargoS

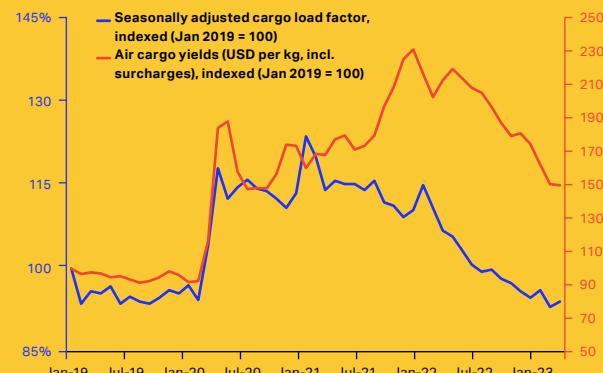
08 Air cargo monthly demand compared with the pre-Covid levels



09 Growth in air cargo demand (CTKs) and global trade, % change year-on-year



10 Global air cargo yields and load factors



Freighters were phased out in 2022

Despite the strong comeback of passenger aircraft belly capacity, the share of international CTKs transported by passenger aircraft remains lower than pre-pandemic levels. Cargo volumes transported by passenger aircraft and by dedicated freighters were previously balanced. During the crisis period, passenger aircraft were used as cargo-only carriers, called "freighters," to address the capacity shortage. They transported 16% of total international CTKs in 2021. As air passenger demand recovered in 2022, however, freighters were phased out, and passenger aircraft only carried about 30% of total international CTKs. By December 2022, freighters accounted for just 1% of total international CTKs.

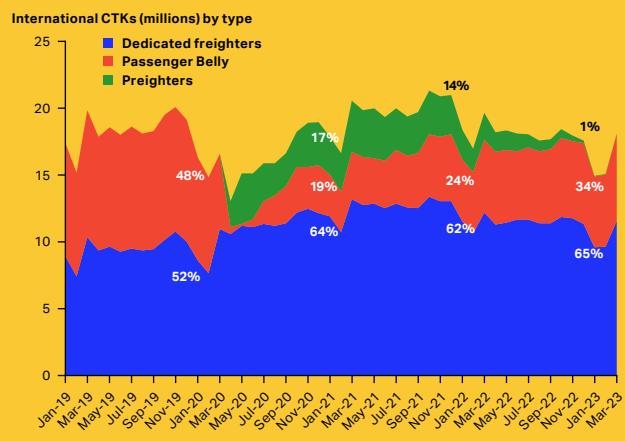
 **11** Source: IATA S&E Economics, using data from IATA Monthly Statistics

Export orders contracted

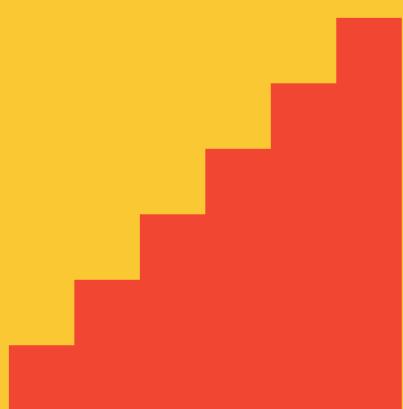
The purchasing managers' index (PMI) for export orders is historically a leading indicator of air cargo demand. The key 50-mark indicates there are no changes in export orders, compared to the previous month. The PMI was in below-50 territory for much of 2022—February being the only exception—which signals a deterioration in new export orders and thus in air cargo demand. However, the recent upward trends observed in January and February 2023 imply a possible improvement in air cargo demand for 2023.

 **12** Source: IATA S&E Economics, using data from IATA Monthly Statistics and Markit

11 International air cargo demand transported by dedicated freighters, passenger belly, and freighters



12 Global manufacturing new export orders PMI and air cargo growth (% year-on-year change in CTKs)



Airline financial performance

Mixed performance for passenger and cargo in 2022

The financial standing of airlines is swiftly rebounding from the substantial deficits experienced in 2020. The performance of passenger and cargo markets were, however, mixed in 2022. Passenger revenue increased an estimated 80%, driven by higher yields and the recovery of international passenger volumes. Meanwhile, cargo revenue is expected to have decreased due to a drop in cargo volumes and despite an increase in cargo yields. For both passenger and air cargo services, the difference between the attained load factor and the necessary load factor for breaking even has been diminishing, and a return to profitability is on the horizon.

 **13** Source: IATA Financial Forecast (December 2022)

Highlights of industry revenue and costs

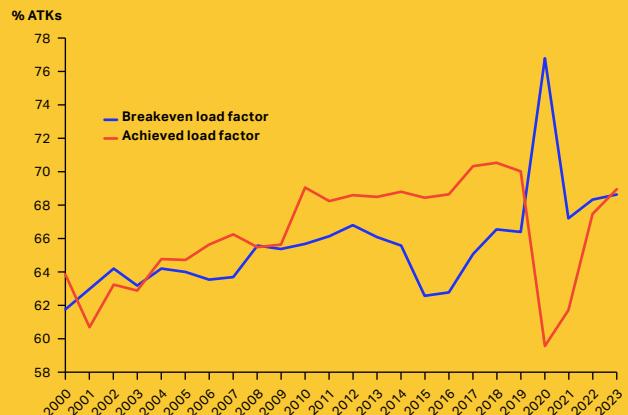
Airlines experienced a significant increase in their costs in 2022. A primary contributing factor is the war in Ukraine, which has led to a sharp rise in global commodity prices. The appreciation of the US dollar and higher interest rates have also contributed to the increase in airline costs, while the rise in labor and other input costs in some markets poses additional challenges for the industry's profitability. Although oil prices and the crack spread are expected to ease from their 2022 level, they will likely remain elevated in 2023. Therefore, cost vigilance, including strategies to continue improving fuel efficiency, will be critical for the industry.

 **14** Source: IATA S&E Economics, using data from S&P Global, Refinitiv Eikon, IEA

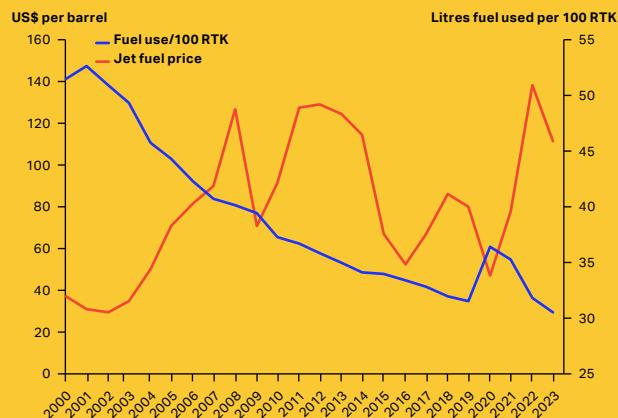
Total revenue for passenger and cargo carriers reached 60% of the pre-pandemic level by the end of 2021, and 87% by the end of 2022. With total revenue around \$780 billion, this signifies a slim margin of 0.6% or just one dollar per passenger.

 **15** Source: IATA Financial Forecast (December 2022)

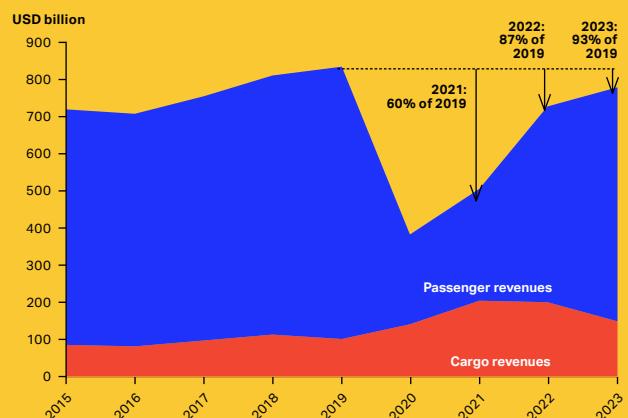
13 Breakeven and achieved cargo and passenger load factor



14 Fuel efficiency and the price of jet fuel



15 Global airlines revenue, by type (USD billion)



NOTE: Discussion and charts based on December 2022 forecast

Industry snapshot 2022

The financial standing of airlines improved across all regions in 2022, with North American carriers taking the lead. Only North American airlines are estimated to have achieved a net profit in 2022, however, though airlines from Europe and Middle East were not far behind.

 16 Source: IATA Financial Forecast (December 2022)

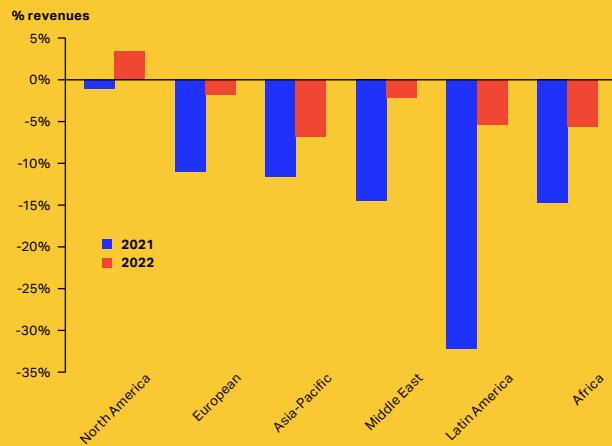
After a significant net loss of nearly \$140 billion in 2020, the industry's loss reduced to approximately \$40 billion in 2021. This recovery continued in 2022, with net losses diminishing further to an estimated \$7 billion.

 17 Source: IATA Financial Forecast (December 2022)

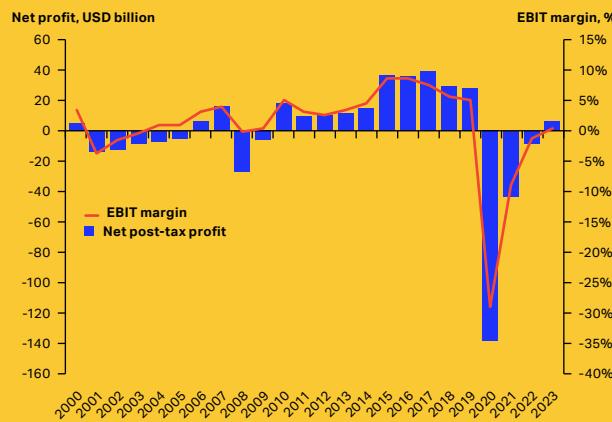
The airline industry experienced a substantial decline in return on invested capital (ROIC) at the beginning of the pandemic. Over the last two years, however, the ROIC has been steadily recovering. Coinciding with the resurgence in airlines' ROIC post-pandemic, aircraft deliveries have been increasing rapidly, with 1,270 aircraft delivered by the end of 2022. This trend highlights the enduring confidence and resilience within the airline industry.

 18 Source: IATA Financial Forecast (December 2022)

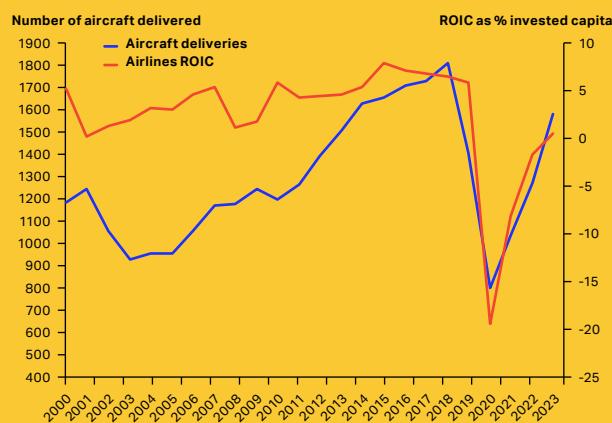
16 Airline region operating margin, % revenue



17 Airline industry net profits and EBIT margin



18 Aircraft deliveries and airline industry ROIC



IATA studies

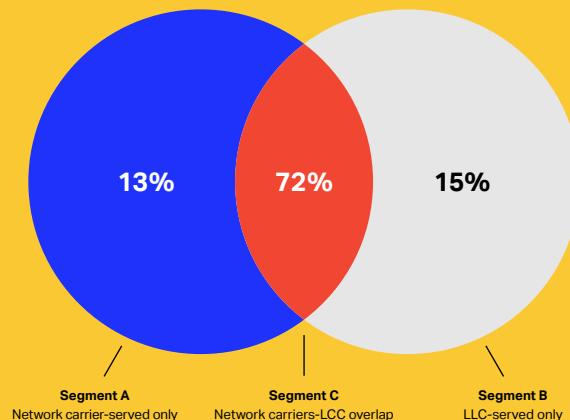
One size does not fit all: A study of airline business models in Europe

Travelers in Europe benefit from a highly competitive air travel market where airlines operate with unique business models to offer a broad range of travel options. An [IATA 2022 report provides an in-depth analysis of network carriers and low-cost carriers \(LCCs\) in the European airline market](#), finding that the business models serve different market segments. Although network carriers are the primary providers of air transport connectivity both within Europe and in the intercontinental markets, LCCs dominate direct route demand in the intra-European market. The report also found that the COVID-19 pandemic had varying impacts on both types of carriers, due to their different market focuses and exposure to travel restrictions. The report concludes that network carriers and LCCs complement each other, and policies should not favor one business model over the other. Instead, regulations should focus on improving all transportation options to be faster, better, cheaper, and sustainable—a general lesson that applies globally.

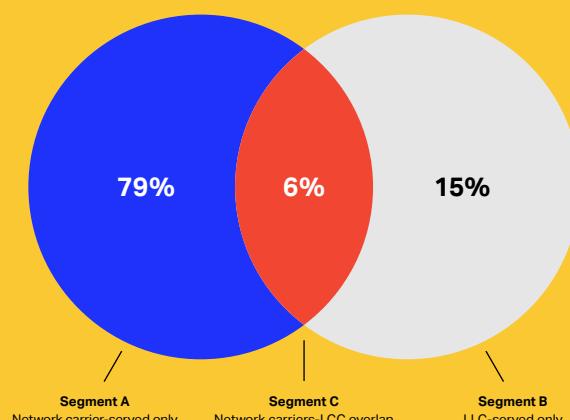
 **19** Source: One Size does not fit all: A study of airline business models in Europe, IATA, 2022.

19 Intra-European Airline Network by Origin-Destination flight itinerary

Intra-Europe O-D passenger demand share



Intra-Europe No. O-D itineraries share



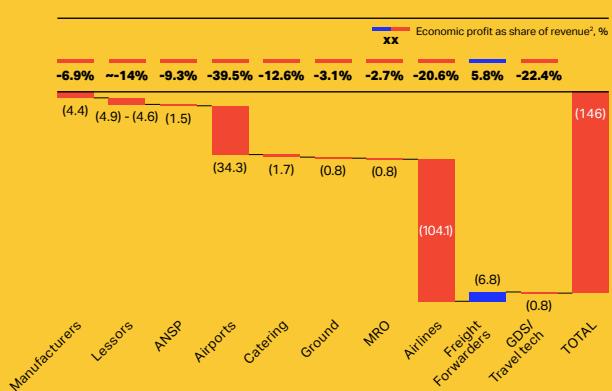
4 A true-origin-to-true-destination (O-D) refers to a unique air travel itinerary, which consists of origin airport – connecting airport #1 – connecting airport #2 – connecting airport #3 – connecting airport #4 – the destination airport. For example, a flight departing from London (LHR), and arriving in Zürich (ZRH) via Paris (CDG), is on a different O-D itinerary compare to a trip departing from London (LHR) arriving in Zürich (ZRH) via Geneva (GVA).

Understanding the Pandemic's Impact on the Aviation Value Chain

Since 2005, IATA has worked with McKinsey & Company to assess value creation across the aviation value chain. [The latest report shows that the COVID-19 pandemic has caused significant value loss for all sectors](#), with the global decline in airline traffic resulting in a loss of \$390 billion in 2020 and 2021. Sectors with a higher share of fixed costs, such as airports, suffered significant losses compared with sectors with a more variable cost base, such as ground handlers. However, air cargo carriers and freight forwarders experienced yield increases and value creation due to supply-demand imbalances. Although the aviation industry's return on invested capital (ROIC) rebounded in 2021, the recovery was uneven across sectors, with airports rebounding the least. As the industry recovers, there is an opportunity to increase the value of all participants in the value chain through performance improvements and collaboration.

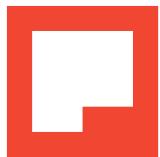
 **20** Source: McKinsey value chain modeling for IATA

20 Economic profit/loss by subsector, 2021, USD Billion



1. Based on invested capital excluding goodwill, extrapolated to total industry.

2. Computed as cumulative economic profit divided by cumulative sector revenues over the period



REGULATIONS

Harmonized regulations can facilitate economic growth

Regulations

Aviation is a global network that needs globally harmonized regulations to operate with maximum safety and efficiency. Air transport is also an economic multiplier and effective, enabling regulation and taxation that reflects best practices can help aviation maximize its economic and social contributions. Governments around the world exhibit varying degrees of understanding of these principles. IATA and its members strive to be a positive partner with governments to work for smarter regulation and taxation regimes.

Slot reform should focus on passenger and economic benefits

Slot regulation exists to help manage insufficient airport capacity. Where demand exceeds capacity, the [World Airport Slot Guidelines \(WASG\)](#) ensure that capacity is managed fairly, transparently, and efficiently. Following the industry's

21





recovery from the impact of the pandemic, slot regulation and policy efforts have moved away from emergency relief toward a strategic restoration of global networks and air connectivity, thereby increasing choice for travelers. In 2022 and into 2023, the Worldwide Airport Slot Board has focused on slot process refinement to facilitate recovery while identifying areas of the WASG that can be enhanced. The aim is to manage scarce airport capacity in a fair and transparent manner, balancing the needs of competition and access with consistent and reliable schedules for airlines and their passengers.

- **Engagement with Brazil's civil aviation authority (ANAC) to review its slot regulation resulted in ANAC's recognition of the WASG. ANAC will in particular apply the WASG in managing congestion issues at Sao Paulo's Congonhas Airport.**

- **COVID: flexibility has remained a key issue for the slot process as airlines navigated different recovery rates in various countries and regions.** The available airport and air traffic control (ATC) capacity challenged the ability of airlines to recover. Several airports experienced operational disruption in summer 2022, requiring schedule reductions to match the capacity available. Slot flexibility was therefore vital to facilitate flight consolidation rather than cancellation. Airlines also relied on slot coordinators to grant alleviation from slot use rules on an ad hoc basis referred

to as Justified Non-Use of Slots (JNUS) when cancellations were required due to matters outside of airlines' control.

- **The EU Commission resumed its slot regulation review in late 2022** and IATA continues to highlight to DG Move how effective slot regulation has been in the EU the last decade. It has facilitated competition, choice and access against a backdrop of hugely congested infrastructure on the ground and in the air. There is a view in the EU that tightening slot rules will bring benefits, but the inflexibility that will result from stricter regulations has been proven to cause harm. In this case, forcing airlines to operate flights would be contrary to the aims of the EU's Green Deal. The evidence is that demand-led scheduling is more sustainable. IATA's position is that slot regulation delivers consumer benefits, and there is no evidence of fundamental structural issues, or of misuse of slots. Improvements should focus on accurate capacity declaration at slot-coordinated airports, to deliver the European Commission's priorities.

Legal action to preserve the Balanced Approach at Schiphol Airport

To protect the Balanced Approach to noise management, IATA joined with a number of airlines serving Amsterdam's Schiphol Airport in a legal challenge to the Dutch government's 'experimental regulation' to cut flight movements

at the airport to 460,000 per year from November 2023. The industry's legal challenge was successful: the judge ruled that the State had not followed the correct procedure in introducing the proposal. According to European rules, the State can only reduce the number of aircraft movements at an airport after going through a careful process. This process includes, among other things, showing that other measures to limit noise pollution are insufficient.

The issue was of the utmost importance to airlines:

- They needed clarity on the application of the Balanced Approach in international and European law.
- They needed certainty for the 2023/24 Northern Hemisphere Winter Season schedules.
- They needed to continue operating slots under grandfather rights as opposed to having them taken away. As there is no precedent or methodology in place for taking grandfather slots away from an airline, it would be difficult to ensure fairness and prevent loss of connectivity. It also would have meant that new airlines that were hoping to get slots at the airport would be unable to get them, negatively impacting consumer choice and competition.

In April, the Dutch government signaled its intention to appeal the decision. Worse, it's pursuing a proposal to lower Schiphol's annual capacity to 440,000 flights from 2024.

“The lessons of light-touch consumer protection regulation are being forgotten.”

Deterrence is the key to preventing unruly passenger incidents

Unruly passenger incidents are a shared concern for regulators and the industry. During the pandemic, there was an appreciable spike in reported incidents relating to non-compliance with crew orders, mainly face mask requirements. The overall incidence of unruly passenger events increased in 2021 to 0.4 incidents per 1,000 flights, up from 0.32 the year before, prompting action by some governments. The United States, for example, introduced an awareness campaign backed by a zero-tolerance approach. Others, like France, introduced civil and administrative penalties—such as spot fines—to ensure a wider range of enforcement mechanisms to deal with different types of unruly passenger events. Having access to a wider range of penalties other than full prosecution enhances the deterrent to unruly incidents.

The 41st ICAO Assembly listened to concerns raised by the industry and urged governments to introduce a three-step approach.

1 Ensure the traveling public are aware of the types of prohibited conduct and the legal and other consequences for misbehavior in line with ICAO Standards and Recommended Practices (SARPs).

2 Enhance the deterrent by
• ratifying the Montreal Protocol

2014 (MP14) so that law enforcement can deal with incidents onboard flights that land in their territory, irrespective of where the aircraft is registered, thus removing a key impediment to prosecution.

- reviewing their enforcement mechanisms and considering civil and administrative penalties to ensure all offenses and acts are subject to enforcement action without only relying on criminal prosecution.

3 Support industry initiatives aimed at improving the prevention and management of incidents.

Some 44 countries approximating to one third of global passenger traffic have now signed up to MP14, with Angola, Armenia, Kenya, Luxembourg, Niger, Oman, Peru, Romania, Rwanda, Sierra Leone and the United Arab Emirates becoming signatories in 2022 or the first quarter of 2023.

Countries are looking at enhancing prevention and management. IATA is supporting the Irish and Norwegian CAAs with new multi-stakeholder campaigns that bring together police, airports, airlines, ground handlers, restaurant, bar and duty-free operators to agree specific actions to avoid incidents. These include enhancing responsible service of alcohol in airport bars and restaurants, and communications to passengers on

the prohibition of drinking duty-free alcohol onboard.

The lessons of light-touch consumer protection regulation are being forgotten

The 2022–23 period marked 45 years since US domestic airline deregulation and 30 years of the Single Aviation Market in Europe. It is therefore disappointing to note that the benefits of promoting customer choice—which helped to deliver a five-fold fall in yields (an indicator for average fares) since 1980—risks being forgotten by a new generation of regulators.

The trend toward the populist introduction or tightening of consumer protection rules continued around the world, particularly in the Americas and Europe. IATA has engaged extensively with regulators in, among others, Brussels, London, Washington DC, and Ottawa. The industry advocates for proportionate regulation that balances the legitimate interests of consumers with the ability of airlines to compete, innovate, and offer the connectivity that generates such huge economic and social benefits.

Additionally, the strong recovery in passenger demand in 2022 created many operational challenges as the industry had to restart from a low base. Some of the issues highlighted the imbalance in existing consumer protection regulations where the problems are often completely outside of airlines' control yet the burden for financial compensation falls on carriers alone.

An example of this is the Canadian Transportation Agency (CTA) proposal in April 2023 to make airlines more accountable for service failures and disruptions regardless of who is at fault. Airlines argue these accountabilities should be shared across the commercial air system and include airlines, airports, and Nav Canada—the air navigation service provider. This issue is a priority area for IATA and airlines, and IATA will accelerate advocacy for a model of shared accountability.

Practical guidance to enhance the travel experience for passengers with disabilities

Airlines are committed to enabling all passengers to fly in safety and dignity. In the case of passengers with disabilities, this creates several challenges that the industry is looking to overcome in partnership with the disabilities community. It is estimated that more than one billion people, around 15% of the world's population, have a disability of some kind. In terms of numbers of travelers, this percentage will likely increase as the population ages in many of the largest aviation markets.

In 2022, the primary focus was on developing guidance to improve the transportation of mobility aids. Key elements of the guidance, published in February 2023, include:

- Better processes for booking and information exchange, including the use of Special Service

- Request (SSR) and Passenger Name Record (PNR) codes.
- A recommendation to create an electronic mobility aid tag, fixed to the mobility aid.
- Advice to airlines on developing a communications toolkit for engaging with passengers with disabilities.
- Best practices for the collection, loading, and return of mobility aids.
- A recommendation for dedicated specialized ramp personnel to handle mobility aids.
- Best practices for how to properly resolve instances where mobility aids are damaged.

In an example of practical assistance rendered to members, IATA and the wider travel chain, working with regulators, enhanced the websites of the three main Italian carriers (ITA, Air Dolomiti and NEOS) to make them more accessible and provide a more

satisfying booking experience. The websites also give better guidance to passengers with disabilities so they know what information to provide in advance of travel to ensure they receive the needed support.

Another notable development in 2022 was the passing of a Resolution at the 41st session of the ICAO Assembly—at the request of the industry—committing ICAO to develop guidance on the design and implementation of a policy aimed at making air transport more accessible for passengers with disabilities and reduced mobility. IATA will support a dedicated ICAO work program that will in turn drive a more consistent policy approach to accessibility around the world.

TAXATION

The taxation of aviation must be in line with principles enshrined in the Chicago Convention and ICAO best practices. Moreover, the industry believes that the taxation of airlines and their passengers should be considered carefully by governments to ensure that the risks of reduced connectivity to the economy do not outweigh the short-term financial gains of any tax.

Some governments are looking to introduce so-called green taxes, often passenger taxes, that do nothing for the environment. If a government is looking to raise money from aviation under an environmental pretext, then it must reinvest the revenues in projects to directly cut emissions from aviation. It could reduce the cost differential between sustainable aviation fuel and fossil jet fuel, for example. In 2022, IATA and its members engaged with numerous governments on a wide variety of tax issues.

Base erosion and profit sharing

There is a G20/OECD (Organisation for Economic Co-operation and Development) project to create a minimum corporate income tax to be applied globally. This is primarily targeted at technology industries and other transnational businesses, not at airlines, but nevertheless brings an array of challenges, including data collection and other financial and administrative costs. IATA is working with the OECD to ensure that this project arrives at a fair outcome for airlines.

Article 8 of the UN Tax Model Convention

IATA and its members will continue to make the case for tax policies, which ensure aviation is paying its fair share, while enabling greater connectivity that strengthens the economy and, in turn, government revenues. One new issue that is particularly concerning is the proposed review of Article 8 of the UN Tax Model Convention. In double tax treaties and bilateral air service

agreements, Article 8 is the article expressly dealing with profits from the operation of aircraft and profits from the operation of ships. The proposed revision would expose airlines to further tax obligations, including the collection, calculation, and reporting of financial data for each jurisdiction where they operate or have economic activities. The industry opposes this revision on several grounds, including ICAO taxation policies, and will advocate strongly against it in 2023.

INFRASTRUCTURE USER COSTS

Airports and air service navigation providers (ANSPs) play an essential role in the aviation industry. Due to the nature of their business, they are natural monopolies. According to an opinion survey conducted by IATA, most travelers agree that airports are essential to the economy, but at the same time consider these as monopolies. This is likely based on the experience of nearly 90% of travelers who said that they mostly used their local airport as other viable options do not exist.

Therefore, effective economic regulations must be put into place to ensure that airports and ANSPs do not abuse their market dominance. As critical pieces of national infrastructure, they have an important and well-recognized role in supporting the competitiveness of local and national economies. At its best, economic regulation is a proxy for competition to ensure continuous efforts at delivering cost-efficiency. This is not an uncommon approach for public utilities. This again is backed up by the opinion survey in which

most respondents stated that airports should be subject to price regulation, similar to public utilities.

There are globally agreed ICAO principles for agreeing charging levels. Airports and ANSPs can recover their costs on the principles set forth in Article 15 of the Chicago Convention and ICAO's four key charging principles of non-discrimination, cost relatedness, transparency, and consultation with users. In reality, these principles are not always followed by infrastructure providers or fully enforced by regulators.

There are some clear examples where the demands of airports and ANSPs for charges increases deserve the scrutiny of regulators. These include:

- Amsterdam Schiphol Airport: The airport intends to increase its charges 37% over three years beginning in 2022. Considering the poor performance of the airport in 2022, the 12% increase scheduled for that year deserves careful scrutiny.
- In South Africa, airports want a 38% charges increase, only to be outdone by South African ANSP demands for a 63% hike. Both far outstrip inflation. And there have been no recent capital expenditure projects that would justify such a hike.
- In Mexico, the main airport groups increased their passenger facilitation charges (PFC) on average 58% over the last eight years. The PFC sometimes represents more than 60% of a domestic ticket price, curbing the ability for the Mexican citizens to visit friends and family.
- In Europe, ANSPs added €1.9 billion to the 2022 cost base. Despite this, delays were three times more than expected, and both capacity and environmental targets were missed.

Lack of transparency remains an issue with increases in charges often decided without the required user consultation process. In some cases, the first notification of an increase is its official



announcement. A case in point is the decision by the Government of Denmark to implement a new air navigation service at the Nuuk Flight Information Region (FIR) to cover the Greenland airspace. This political decision was announced without consultation and transparency, even though the airspace is managed by Canada and Iceland.

Along similar lines, we are seeing increasing non-compliance to ICAO user charges setting principles and policies by countries. One such example is charging administrative fees to process overflight permits for airlines, especially by authorities in Africa. It is a trend across the continent with Ethiopia, the Central African Republic, Togo, and Tanzania implementing various schemes for administrative fees with little or no transparency on the costs involved.

Where ICAO principles are followed by regulators, there are good results. Dublin Airport, for example, was advised by its regulator that the proposed 73% increase in the per passenger fee to €13.81

for the 2023–2026 period was unacceptable. Instead, a 5% increase from 2022 levels to €8.39 was approved. This clearly shows how effective economic regulation can be in preventing abuse.

The best-case scenario is when the infrastructure provider proactively opens meaningful consultations prior to making proposals to regulators. Airways New Zealand, for example, released a consultation in 2022 to establish new rates for their air navigation charges for the subsequent three-year period. IATA worked with Airways New Zealand to establish a pricing framework based on the traffic forecast, which led to an out-of-cycle price reset and a small reduction of 0.5% in air navigation charges for the remainder of this financial year.

The Airways New Zealand approach, however, is rare. The unreasonable rate hikes that continue to emanate from airports and ANSPs demonstrate the value of the ICAO charging principles and rigorous economic regulation that supports those principles.



"Lack of transparency remains an issue with increases in charges often decided without the required user consultation process."



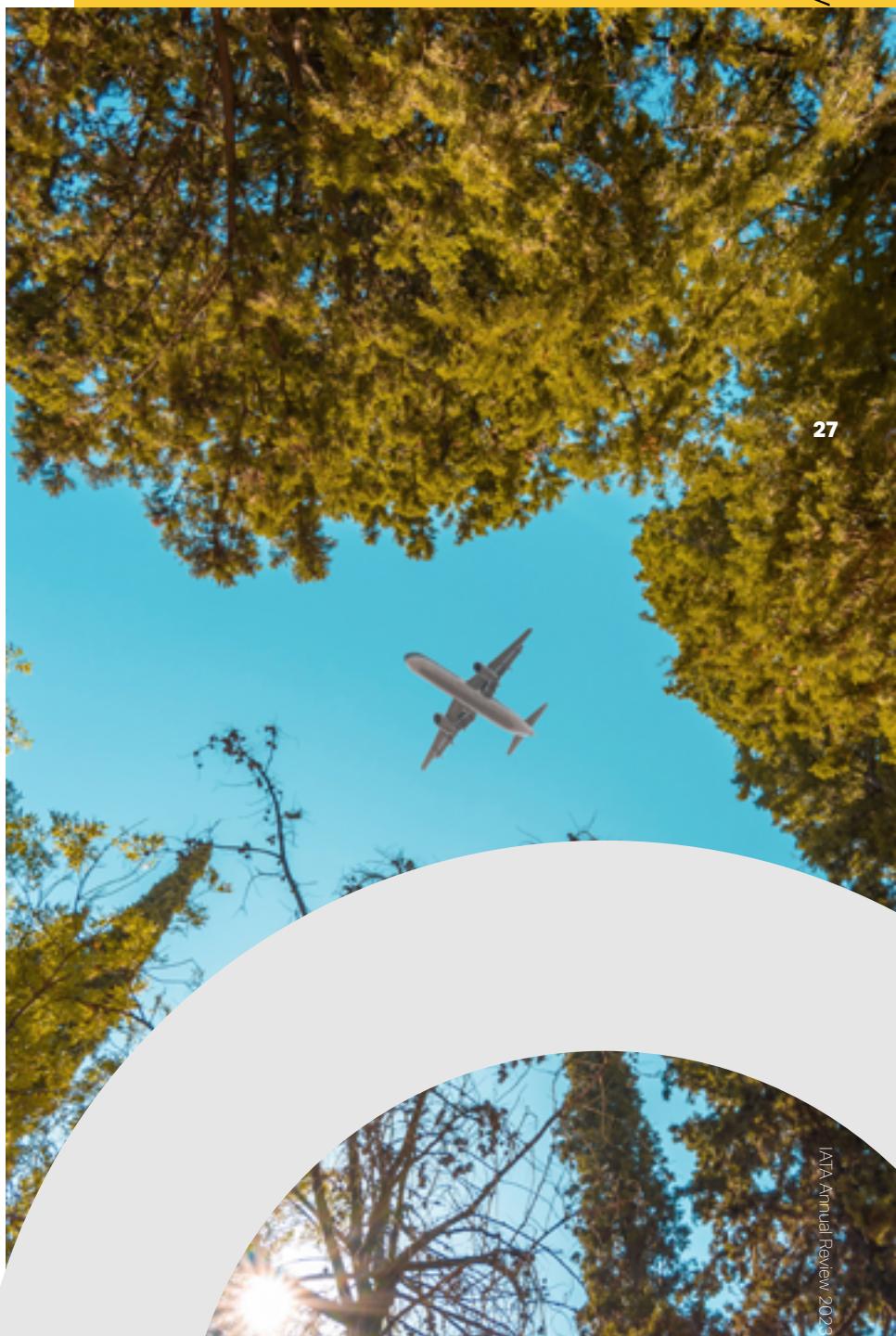
Making sustainability an industry priority

Sustainability is a critical challenge for the airline industry and its stakeholders. The industry continues to strengthen its efforts to reduce its environmental impact while calling for enabling policy frameworks to develop key elements of aviation's net zero strategy.

Adoption of a Long-Term Aspirational Goal at ICAO

In October 2022, at the 41st ICAO, member states adopted a Long-Term Aspirational Goal (LTAG) to achieve net zero CO₂ emissions by 2050. This important step forward by states aligns with both the objectives of the Paris Agreement and the net zero CO₂ emissions by 2050 resolution agreed by airlines at the 77th IATA Annual General Meeting in October 2021.

In the run-up to the ICAO Assembly, the industry strongly encouraged governments to adopt the LTAG. Supportive government policies are critical to the success of reaching the industry's goal of net zero CO₂ emissions by 2050 and, with the adoption of the LTAG, both governments and industry are focused on reaching net zero. As a result, the industry expects much stronger policy initiatives in key areas of decarbonization, such as incentivizing the production capacity of sustainable aviation fuels (SAF), thereby reducing their cost. The progress made in many economies on the transition of electricity production to green sources, such as solar power and wind, is an example of what can be achieved with the right government policies, particularly in production incentives.



CORSIA baseline revised to 85% of 2019 level

The ICAO Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) will stabilize emissions in the short to medium term as a step to reach the net zero goal. Under CORSIA, airlines are required to purchase eligible emission units to offset increases in CO₂ emissions above a baseline that was originally defined as the average of emissions in 2019 and 2020. In 2020, given the extraordinary impact of the COVID crisis on demand, ICAO's Council decided that 2019 emissions from international aviation will be CORSIA's baseline for its pilot phase (2021–2023).

CORSIA's baseline for the 2024–2035 period was subsequently revised during the ICAO's 41st Assembly, taking into account a commitment to CORSIA's reinforcement and an agreement to stabilize emissions from international aviation at 85% of the 2019 level. Although the industry had hoped for a baseline of 100% of 2019 emissions, it withdrew its opposition in the interest of united state support for CORSIA. Many governments emphasized CORSIA's role as the only economic measure applied to manage the carbon

footprint of international aviation. In the industry's view, the Assembly's agreement strengthens CORSIA.

Lowering the baseline to 85% of 2019 emissions will nevertheless place a significantly greater cost burden on airlines. Consequently, it is more vital than ever that governments reinforce CORSIA as the only economic measure to manage the carbon footprint of international aviation. States must honor, support, and defend CORSIA against any proliferation of economic measures that will risk undermining CORSIA and the collective effort to decarbonize aviation.

SAF gained momentum but more policy support needed

The industry expects SAF to play the largest role in decarbonizing aviation. IATA estimates that around 65% of the mitigation needed for net zero carbon emissions in 2050 will come from SAF. In 2022, global SAF production reached at least 300 million liters—a 200% increase on the 2021 production total of 100 million liters. This scenario, with the right supporting policies, positions the SAF industry on the verge of an exponential capacity and production ramp-up and drives it toward a potential production

of 30 billion liters by 2030.

To April 2023, over 490,000 commercial flights have been operated using SAF, and the growing number of airlines signing offtake agreements with producers sends a clear signal to the markets that SAF is needed in larger quantities. Since the beginning of 2022, 57 offtake agreements have been signed between airlines and SAF producers.

With every single drop of SAF produced bought by airlines, there is a supply issue that market forces alone will not solve. Governments—that through the LTAG share the same 2050 net zero goal as the industry—must put in place comprehensive production incentives for SAF. Such incentives successfully transitioned economies to renewable sources of electricity, and they are needed for aviation to decarbonize.

In August 2022, the US Government passed the Inflation Reduction Act (IRA), which will see the country invest a record \$369 billion in clean, renewable energy. The SAF Blenders Tax Credit, as part of the IRA, offers a baseline tax credit of \$1.25/gallon of SAF produced with an emission reduction factor of 50%. For every increment 1% of emission reduction factor, an extra \$0.01 of tax credit is added—up to a maximum of \$1.75/gallon of SAF produced. This incentive goes directly to the producer/blender and will result in a) reducing the cost of production for SAF, and b) reducing the opportunity cost of producing SAF relative to a producer's other co-products, such as renewable diesel. This whole-of-government approach to incentivize the production of SAF is expected to result in the production of at least 11 billion liters of SAF by 2030.

In March 2023, the European Commission published its proposed response to the IRA in the form of the Net Zero Industry Act (NZIA), which aims to scale-up clean technology manufacturing in the EU with a target to provide at least 40% of the EU's annual deployment

"The industry expects SAF to play the largest role in decarbonizing aviation."

needs for strategic net-zero technologies by 2030. This could be an opportunity to create a more robust SAF industry in Europe. The proposed legislation still needs approval from the European Parliament and the EU Council.

IATA opposes SAF mandates on airlines. Several countries established a SAF mandate, with set requirements to include a minimum of SAF in jet fuel for all commercial flights from the country's airports. Imposing a purchase obligation on airlines when supplies are insufficient is not sound policy. As SAF is in the early stages of market development, mandates should only be used if they are part of a broader strategy to increase the production of SAF and complemented with incentive programs that facilitate innovation, scale-up, and unit cost reduction.

Government policy has an instrumental role to play in the deployment of SAF and IATA encourages policies which are harmonized across countries and industries, while being technology and feedstock agnostic. Incentives should be used to accelerate SAF deployment.

Developing carbon calculation tools and expanding partnerships

In 2022, IATA launched IATA CO₂ Connect, an online tool based on IATA's CO₂ Calculation Methodology, which provides the most accurate CO₂ emission calculations for any given commercial passenger flight. IATA CO₂ Connect responds to the growing demand for CO₂ data transparency linked to airline specific and actual fuel burn information and load factors. This sets it apart from theoretical data models that already exist on the market.

Holistic schemes and guidance for environment and sustainability

The IATA Environmental Assessment (IEnvA) program is an evaluation system designed to independently assess and improve

the environmental management of an airline. It requires airlines and their supply chain affiliates to keep track of, mitigate, and manage environmental and sustainability risks. This assessment is aligned with internationally accepted management standards to effectively address the most significant environmental challenges that the aviation industry faces today. Some 50 airlines are part of the IEnvA program, with 35 of them fully certified and the other in the process of being certified. In addition to running the IEnvA program, in 2023, IATA has launched the IATA Environmental Assessment for Airports and Ground Service Providers (IEnvA for Airports and GSPs).

The IATA Airport Development Reference Manual is the essential guide for the development of sustainable world-class airport facilities. It is the industry reference manual for all aspects of airport planning, capacity definition, and facilities design. The latest edition contains new chapters on environmental sustainability, pandemic resilience, accessibility, universal design, an alternative approach to capacity calculations, guidance forecasting and planning

for the construction delivery phase, and the concept of operations.

Other sustainability challenges also require focus

Making aircraft cabins more sustainable is a priority for the industry. Airlines recognize the importance of reducing, reusing, and recycling cabin waste from their flight operations to minimize their environmental footprint. Passengers are increasingly concerned about the impact of cabin waste, notably single-use plastics (SUPs), while governments are focusing on minimizing food waste. The dichotomy is that less packaging can lead to more food waste. Hence, airlines are concerned that asymmetric regulatory systems will inhibit their ability to respond to these challenges.

IATA and four other industry groups, together with more than 20 airlines, 11 airports and airport groups, and a catering company, have signed a joint statement calling for the European Commission to review its approach to international catering waste so that the aviation sector can make a more positive contribution to the circular economy through cabin waste prevention, reuse, and



recycling initiatives. The adoption of smarter International Catering Waste regulations will result in less cabin waste, more material recovery, financial benefits, and improved customer satisfaction. It will further support policymakers in maintaining high animal health status through thorough checks, thereby contributing to the EU's ambitious circular economy goals. The issue at hand is that health authorities believe food waste could compromise animal health through the importation of disease even though there is no risk-based assessment to prove this.

In 2022, UN Member States agreed to develop a legally binding deal to end plastic pollution. The details are expected in 2024. With this in mind, IATA engaged with the UN Environment Program (UNEP) process to contribute the airline perspective to the agreement, as airlines are unique in having to

comply with different regulations at both ends of a journey. In addition, IATA is working with UNEP to develop a UNEP-IATA guidance on Rethinking Plastics in Aviation, which will provide an overview of regulations, guidance on SUP replacement, and recommendations for the industry. It will also address concerns regarding the patchwork of unharmonized measures that the industry faces.

IATA is also active in addressing the challenge of illegal wildlife trade. In 2023, IATA assumed the role of Vice-Chair of the United for Wildlife (UfW) Transport Taskforce, which brings together global transport and freight industry experts, including airports, shipping companies, and airlines, with law enforcement and other agencies to identify and facilitate action led by the private sector. Since its inception, 79 airlines have signed the Buckingham Palace

Declaration on the Transportation of Illegal Wildlife Products. Signatories from the aviation community also include Airports Council International (ACI), African Airlines Association (AFRAA), Association of South Pacific Airlines (ASPA), Airlines for Europe (A4E), Airlines Association of Southern Africa (AASA), and individual airports.

Moreover, IATA is working on a pilot project with an enforcement authority in Southern Africa on the automated detection of illegal wildlife concealed in baggage using a machine-learning algorithm. It is additionally raising awareness with enforcement authorities of advances in aviation digitization and automation that could provide additional sources of digital intelligence.

EU Energy Taxation Directive (ETD)

This is a European Commission proposal to introduce and gradually increase a jet fuel tax over a period of 10 years. This requires unanimous agreement from all member states, and there is some reluctance to introduce such a tax. A compromise was put forward by the Czech Presidency at the end of 2022 but was not adopted. The compromise has been further modified to exempt island member states on a temporary basis and negotiations are continuing.

Governments must honor their obligations under the Chicago Convention that exempts jet fuel for international flights from taxation. As with most aviation taxes, this is a pure money grab by governments, which will undermine the freedom for people to move within the EU and which has no environmental benefit. European businesses surveyed in October 2022 listed "reducing the cost" as their number one request when asked what European governments should prioritize in terms of improving air transport. The ETD proposal goes against the needs and wishes of European travelers and business, and IATA and industry representatives continue to campaign against it.

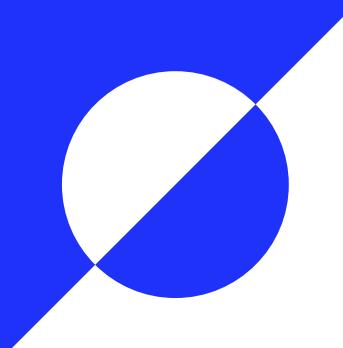


"In 2022, UN Member States agreed to develop a legally binding deal to end plastic pollution. The details are expected in 2024."



DIVERSITY & INCLUSION

25by2025 driving better female representation across the industry



When 25by2025 was launched in 2019, it was a rallying call for the industry to look at the gender imbalances and to take steps to redress them. Three and a half years after the launch, there are improvements across the industry against the key metrics.

At the end of 2022, there were 176 signatories to the pledge,

including 23 from Africa /Middle East, 36 from the Americas, 25 from Asia-Pacific, 12 from North Asia and 80 from Europe.

As part of the ongoing effort to monitor diversity, equity and inclusion, IATA continues to collect data from all the 25by2025 signatories on a yearly basis. As the number of signatories has increased, so too has the available



data, giving a more robust picture of the shape of the industry.

Collected data shows that the overall number of women in aviation increased 42% in 2022 and the number at senior levels is at 28%, a near 15% increase on 2021. The most visible change is in technical roles where 18% of jobs are occupied by women compared with 12% in 2021. The percentage of women on the flight deck is now at 5%, which represents a 23% increase over last year.

As a result of the changing paradigm, in 2022 five female CEOs were appointed, at Austrian Airlines, El Al, Hahn Air, KLM Royal Dutch Airlines, and Pegasus Airlines. As a result, the total number of women CEOs among IATA member airlines reached 28. These changes at the leadership level prove the value of diversity and inclusion and are a beacon of change for the entire industry.

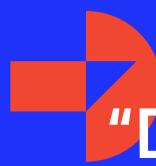
To help the industry become diverse and inclusive and to make its commitment to reaching—or exceeding—25by2025 targets a reality, IATA continues to organize quarterly calls with all the signatories where they share best practices and discuss the business benefits of making the industry more diverse. The focus

of those meetings is to inspire others to make bold decisions and not shy away from becoming a driving force for a diverse and inclusive industry.

In addition to quarterly calls, IATA is committed to the annual Diversity & Inclusion Awards that focus on recognizing female leadership in the industry. The 2022 winners included the CEO of Pegasus Airlines, Gülistan Özürk (Inspirational Role Model Category), Kanchana Gamage, Founder and Director

of The Aviatrix Project (High Flyer Category) and airBaltic (Diversity & Inclusion Team category).

To further strengthen the importance diversity and inclusion plays in the industry, IATA partnered with PwC to showcase best practices and inspire the aviation value chain to drive diversity and inclusion initiatives. During 2023, this partnership will be complemented with a maturity assessment that airlines can take to benchmark themselves against their peers.



"Developments at the leadership level prove the value of diversity and inclusion and are a beacon of change for the entire industry."





PASSENGER EXPERIENCE

Getting passengers ready to fly

As a result of the COVID-19 pandemic, many projects aimed at improving the passenger experience were put on hold. With traffic rebounding significantly during the main travel seasons in 2022, it became clear that investments in automation and digitalization needed to be revived.

Arriving at the airport ready to fly

Several new IATA standards will bring the aim of having travelers arrive at airports ready to fly one step closer to reality. In 2022, for example, IATA released its recommended practice on Digitalization of Admissibility. This will enable travelers to digitally prove admissibility to an international destination, avoiding a stop at the check-in desk or boarding gate for document checks.

Programs are already in use in various airports enabling travelers to move through such airport processes as boarding without producing paper documentation

because their boarding pass is linked to a biometric identifier. But in many cases travelers still have to prove their admissibility at a check-in desk or boarding gate with physical checks of paper documentation, including passports, visas and health credentials.

The Digitalization of Admissibility standard will advance the realization of One ID by providing a mechanism for passengers to digitally obtain all necessary pre-travel authorizations directly from governments before their trip. By sharing the "OK to Fly" status with their airline, passenger airport document checks will become redundant.

One ID enables travelers to move from curb to gate using a single biometric travel token, such as a face, fingerprint or iris scan and can provide their information direct to governments without airlines acting as intermediaries.

In the future, travelers will be able to:

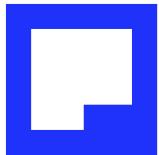
- Create a verified digital identity using their airline app on their smartphone.
- Send proof of all required documentation to destination authorities in advance of travel.
- Receive a digital approval of admissibility in their digital identity/passport app.
- Share the verified credential—not all their data—with their airline.
- Obtain confirmation from their airline that all is in order.

Data Security

The new standards have been developed to protect passengers' data and ensure that travel remains accessible to all. Passengers remain in control of their data and only verified approvals—not the data behind them—are shared peer-to-peer, with no intermediating party. This is interoperable with ICAO standards, including those for the Digital Travel Credential. Manual processing options will be retained so that travelers will have the ability to opt out of digital admissibility processing.



"The new standards have been developed to protect passengers' data and ensure that travel remains accessible to all."



CARGO

Cargo

Maintaining air cargo's positive progress

The air cargo business has been reshaped as a result of the COVID-19 pandemic. Its contribution to the bottom line of airlines is more evident, for example, with both revenues and yields remaining above pre-pandemic levels. However, air cargo volumes have come under pressure since mid-2022 as governments introduced economic cooling measures. Nonetheless, industry growth drivers, such as the expanding middle class, the need for quick delivery of high-value goods and pharmaceuticals, and the growing e-commerce market are strong.

To maintain air cargo's positive development, the industry is focusing on the following areas:

- Sustainability
- Digital Transformation
- Safety

Sustainability

Sustainability is a priority for the entire aviation industry, including air cargo. The development of sustainable aviation fuels (SAF) has emerged as the key driver in realizing net zero carbon emissions by 2050. The increased production of SAF has led to growing demand from shippers, customers, and regulators for immediate carbon-neutral shipping options and assurances of sustainable operations. To address this need, IATA has made significant progress in three key areas:

• Effective CO₂ Emissions Calculations

To ensure CO₂ data transparency, accurate and standardized emissions calculations are essential, and IATA is aiming to provide airline-specific data linked to actual fuel burn, in conjunction with the industry-approved methodology,

35





Cargo

RP1678. This will provide the basis for CO2 Connect for Cargo, a tool that will provide reliable and standardized emissions calculations.

- **IEnvA for Cargo**

The reach of the IATA Environmental Assessment (IEnvA) program has been extended to various stakeholders in the air cargo value chain, including airports, cargo handling facilities, freight forwarders, and ramp handlers. This enables a collective move towards a more sustainable industry.

- **Waste Reduction across the Cargo Supply Chain**

The cargo industry is actively collaborating to reduce waste generated throughout the cargo supply chain, including plastic. Through concerted efforts, such as optimizing packaging, exploring alternative materials, and implementing recycling initiatives, a more sustainable and circular economy within the cargo industry will be fostered.

Digital Transformation

Digitization is another key priority for the air cargo industry, focusing on the following three main goals:

- **100% Airline Capability of ONE Record by January 2026**

Work across the industry to ensure the full implementation of ONE Record by January 2026 continues. The various data standards in use for transporting documents will be replaced with a unified record for every shipment, streamlining processes and enhancing efficiency.

- **Developing Digital Standards to Support the Global Supply Chain**

Tracking device standards, known as the IATA Interactive Cargo guidelines, have been finalized, improving the monitoring of the quality and accuracy in worldwide shipping of time and temperature-sensitive

goods. Additionally, collaboration with the European Commission's "FEDeRATED" project supports the development of interoperable technologies and data architectures for multi-modal transport.

- **Compliance and Support for Digitalized Customs and Trade Facilitation**

Aviation is working with governments to reduce operational barriers at borders, and secure the flow of goods. Notably, IATA has been actively supporting the rollout of the EU's Pre-Loading Advance Cargo Information (PLACI) System, contributing to the industry's modernization.

Safety

Safety is a primary concern for the air cargo industry, with a particular focus on the safe transportation of lithium batteries.

Efforts in this area have centered on:

- **Stopping Rogue Shippers**

IATA has been actively urging civil aviation authorities to take strong action against rogue shippers, emphasizing the importance of complying with shipping regulations. Moreover, IATA is advocating for government support of ICAO's efforts to strengthen the standards outlined in Annex 18: The Safe Transport of Dangerous Goods.

"Safety is a primary concern for the air cargo industry."

- **Enhancing Countermeasures**

IATA has been collaborating with the European Union Aviation Safety Agency (EASA) and the Federal Aviation Administration (FAA) to develop a test standard for fire-resistant aircraft containers in the event of a lithium battery fire. The goal is for Unit Load Devices (ULDs) to be capable of containing a lithium battery fire for up to six hours, thus mitigating potential risks.

- **Addressing the Challenge of Lithium Battery-Powered Vehicles**

IATA has successfully established a single standard for identifying all lithium battery-powered vehicles, including hoverboards, e-scooters, e-bikes, and traditional passenger vehicles, throughout the transport process. This new standard, which comes into effect on 1 January 2025, will ensure consistency and safety in the transportation of lithium battery-powered vehicles.

- **Expansion of CEIV Lithium Battery Program**

IATA's Center of Excellence for Independent Validators (CEIV) Lithium Battery program has experienced significant growth in the last 12 months with 31 companies now certified. This program encompasses the entire supply chain, including airlines, freight forwarders, cargo handling facilities, and shippers.

SAFETY

Transitioning to Risk-Based IOSA

Over 32 million flights were operated in 2022, an increase of 25% compared with 2021, but still 31% below the 2019 (pre-pandemic) figure.

This rapid ramp up in services did not negatively impact overall safety levels, which

continued to improve in some key metrics. Industry-wide, the number of fatal accidents, the fatal accident rate and the fatality risk all declined last year versus 2021 and the five-year rate of 2018-2022. The all-accident rate for IATA member airlines improved against both yardsticks as well.



2022 by the numbers

2022

2021

5-year average (2018-2022)

Safety

38

All accident rate (accidents per one million flights)	1.21 (1 accident every 0.83 million flights)	1.13 (1 accident every 0.89 million flights)	1.26 (1 accident every 0.81 million flights)
All accident rate for IATA member airlines	0.49 (1 accident every 2.1 million flights)	0.61 (1 accident every 1.6 million flights)	0.76 (1 accident every 1.4 million flights)
Total accidents	39	29	43
Fatal accidents	5 (1 jet and 4 turboprop)	7 (1 jet and 6 turboprop)	7 (3 jet and 4 turboprop)
Fatalities onboard	158	121	231
Fatality risk	0.11	0.23	0.13
IATA member airlines fatality risk	0.02	0.00	0.05
Jet hull losses (per one million flights)	0.17 (1 major accident every 5.8 million flights)	0.13 (1 major accident every 7.6 million flights)	0.16 (1 major accident every 6.4 million flights)
Turboprop hull losses (per one million flights)	1.47 (1 hull loss every 0.68 million flights)	1.77 (1 hull loss every 0.57 million flights)	1.12 (1 hull loss every 1.2 million flights)
Total flights (million)	32.2	25.7	34.4

Jet hull loss rates by region of operator (per 1 million departures)

Region	2022	2021	2018- 2022
Africa	0.00	0.00	0.28
Asia Pacific	0.00	0.33	0.26
Commonwealth of Independent States (CIS)	1.18	0.00	0.98
Europe	0.00	0.27	0.12
Latin America and the Caribbean	0.95	0.00	0.34
Middle East and North Africa	0.00	0.00	0.00
North America	0.00	0.14	0.06
North Asia	0.46	0.00	0.12
Global	0.17	0.13	0.16

The global average jet hull loss rate rose slightly in 2022 in relation to the five-year average (2018-2022). Five regions saw improvements, or no deterioration, compared to the five-year average.

Turboprop hull loss rates by region of operator (per 1 million departures)

Region	2022	2021	2018- 2022
Africa	7.05	5.59	4.09
Asia Pacific	0.00	0.00	0.22
Commonwealth of Independent States (CIS)	0.00	42.53	13.30
Europe	0.00	0.00	0.00
Latin America and the Caribbean	0.00	0.00	1.86
Middle East and North Africa	0.00	0.00	1.44
North America	0.00	0.00	0.35
North Asia	0.00	0.00	0.00
Global	1.47	1.77	1.12

The number of turboprop accidents declined in 2022 compared with 2021 but they accounted for four of the five fatal accidents in 2022 with loss of life to passengers and crew. Although sectors flown by

turboprops represented just 10.6% of total sectors flown, turboprops were involved in 36% of all accidents, 80% of fatal accidents, and 16% of fatalities in 2022.

Six regions showed improvement or no deterioration, in the turboprop hull loss rate in 2022 when compared to the five-year average. The two regions to see increases compared to the five-year average were Latin America/Caribbean and sub-Saharan Africa.

IATA is working to support the Latin America/Caribbean region with the adoption of safety best practices through regional bodies of IATA and ICAO.

In parallel, the priority for Africa continues to be implementation of the ICAO's safety-related standards and recommended practices (SARPS).

Increased use of data-driven analysis, using tools such as IATA's Global Aviation Data Management (GADM) program, can also help deliver regional improvements. In addition, in both regions, the IATA Standard Safety Assessment (ISSA), for operators of smaller aircraft that are not eligible for the IATA Operational Safety Audit (IOSA) program, can provide support.

Wanted: prompt and thorough accident reports

Most accident fatalities in 2022 (138 out of the total 158) have yet to be classified. This illustrates the shortfall by countries and their accident investigation authorities as prompt and accurate investigation reports are critical to improving safety and required under ICAO Annex 13. Advocating for more timely publication of comprehensive accident reports will be an IATA priority in 2023.

Other 2023 priorities include:

- Improving runway safety, which means continuing to look at, and coordinate activities relating to, a number of precursors to runway events, including aircraft performance, unstable



"IATA remains focused on the three pillars of the IATA Safety Strategy, relating to Safety Leadership; Safety Risk; and Safety Connect."

approaches, and hard landings.

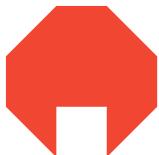
- Ensuring the Ground Proximity Warning System (GPWS) database of obstacles is accurate and remains updated. There were no Controlled Flight into Terrain (CFIT) accidents in 2022. When they occur, however, CFIT accidents account for a substantial number of fatalities. Between 2017 and 2021, six CFIT accidents resulted in 108 fatalities. IATA has successfully campaigned for more frequent database update cycles, and it will continue this activity in 2023.
- Ensuring that flight crew respond promptly to Traffic Collision and Avoidance Systems (TCAS) alerts. Although the last midair collision between two commercial aircraft occurred more than 20 years ago, such accidents account for a substantial number of fatalities. Addressing airspace where TCAS-related maneuvers occur more frequently will support the reduction of these hotspots.

Beyond these activities, IATA remains focused on the three pillars of the IATA Safety Strategy, relating to Safety Leadership; Safety Risk; and Safety Connect.

IOSA

Since IOSA was formally rolled out in 2003 with Qatar Airways as the first participant, it has become the global standard for operational safety audits. Since 2005 (the first year in which complete data is available), the all-accident rate for IOSA airlines is more than twice as good as for non-IOSA airlines (1.40 vs. 3.49). In 2022, carriers on the IOSA registry had an aggregate safety record that was four times better than non-IOSA carriers.

In 2022, IATA began transitioning IOSA to a risk-based model. Under Risk-Based IOSA, audits will be tailored to the airline's individual operating profile and history. Additionally, IOSA is introducing a maturity assessment of the operator's Safety Management System (SMS) and other safety critical programs. By focusing on pertinent safety risks while maintaining a baseline of safety, Risk-Based IOSA will contribute to raising the safety bar even higher.



Aviation Spectrum 5G

Protection of the civil aviation radio spectrum and aircraft safety systems is an IATA top priority. The rollout of C-band 5G telecommunications operations at 188 US airports beginning in January 2022 created the threat of enormous disruption to aviation, owing to the potential risk of interference with radio altimeters (radalts) that are critical to aircraft landing and safety systems. Disruptions were only avoided by an eleventh-hour compromise between the US Federal Aviation Administration (FAA) and the respective telecom service providers (telcos). Under the compromise, the telcos agreed to restrict the power levels of their 5G C-band towers near US airports and approach paths until 1 July 2023 (subsequently the telcos agreed to extend this to 1 January 2028). Even with this agreement, however, the continuing risk of interference with aircraft radalts was seen as so significant by the FAA that airlines were only permitted to operate at affected airports in low visibility (Category 2 and Category 3) conditions through one of two methods:

- Alternative Means of Compliance (AMOC) under which avionics and aircraft original equipment manufacturers (OEMs) establish that specific aircraft / radalt combinations provide sufficient resilience against interference to continue to utilize low visibility landing procedures at the affected airports.
- Modifying existing radalts or replacing them with newer models at airline expense, to enable unrestricted operations at agreed 5G power levels.

In May 2022, the FAA informed airlines that, as of 1 July 2023, the AMOC process would end. Rather, there will be a blanket requirement defining a minimum performance level for radalts to continue to utilize instrument landing systems at the 188 affected US airports. Radalts not meeting the minimum performance level would have to be replaced or upgraded at airline



expense. The cost of fleet-wide radalt upgrading is estimated at more than \$638 million. From 1 February 2024, aircraft that have not been retrofitted will be banned from operating in US airspace. IATA continues to advocate for an extension of the 1 July 2023 deadline, which is not achievable for many airlines owing to supply chain and other challenges.

Furthermore, the required retrofits are a temporary fix as they are not sufficiently resilient in the face of full power 5G C-band transmissions. New 5G tolerant radalt standards are being

developed but are not expected to be approved before the second half of 2024. Following that, radalt makers will begin the lengthy process to design, certify, and build the new devices for installation in thousands of existing aircraft and in all new aircraft delivered between now and 2028. Four-and-a-half years is a tight timeframe for an undertaking of this scale.

The situation in the United States is fortunately, unique. With a few limited exceptions, governments have recognized the importance of ensuring that aviation and 5G can co-exist. In Europe, for example,

the dedicated 5G spectrum is in the 3.4GHz to 3.8GHz range, far enough away from that used by radio altimeters. The power levels are generally far lower too. French transmission power is ten times lower than that licensed in the United States. Elsewhere, Australia, China, and Japan have all taken sensible precautions. In Japan, for example, the macro cell power levels are only 4% of that permitted in the United States and the small cell power levels are less than 1% of US levels. At present, Canada has limited 5G C-band transmission power. It has, however, introduced exclusion zones on an interim basis, and antennas have a national down-tilt requirement. IATA is working with other aviation stakeholders to ensure the industry's interests are represented in radio spectrum allocations. IATA takes a leading role in defining and representing airline requirements at the International Telecommunications Union (ITU) World Radiocommunication Conferences (WRC), which meet every three or four years.

Ligado Markets

Another threat to aviation radio spectrum comes from Ligado Networks, which received US Government approval to operate a nationwide wireless broadband network using transmitters operating near the spectrum employed by the Global Positioning System (GPS).

The industry is concerned that Ligado's transmissions adjacent to GPS frequency bands will create interference for GPS receivers, potentially disrupting aviation safety, navigation, and landing systems that require GPS to be fully operational. Additionally, the FAA's NextGen Air Traffic Management modernization program depends on GPS as one of its foundation technologies.

IATA has joined a broad coalition of stakeholders across many industries that also rely on GPS to oppose the Ligado Networks decision. IATA is also advocating with other stakeholders against Ligado's application to operate a similar wireless broadband network in Canada.



"IATA is working with other aviation stakeholders to ensure the industry's interests are represented in radio spectrum allocations."

SECURITY

Evolving security to meet new risks

International aviation security is evolving with some key governments, including the United Kingdom and United States, beginning to move to a more balanced approach between regulators and industry. Governments continue to hold the primary responsibility for security, though some are inviting industry expertise and the appetite for prescriptive measures is shifting toward a willingness to let the industry be responsible for the performance of its measures. In sum, governments are engaging with airlines, allowing airlines to take on a more active role, rather than just issuing rules

and regulations. This includes regulators' recognition of airlines' Security Management System (SeMS), an element of the IATA Operational Safety Audit (IOSA) since 2007.

The overall baseline of security measures contained in Annex 17 to the Chicago Convention provides a robust framework in the coordination and overall civil aviation protection regime. In 2022, with industry encouragement, ICAO completely reformed international incident reporting guidance and mechanisms, creating an internationally harmonized language and taxonomy for the



reporting, sharing and analysis of incidents. This will lead to a stronger system.

Concurrently and with industry input, Annex 17 Aircraft Operator Security Program (AOSP), a standard that created significant unnecessary administrative duplication and burden on the industry, was completely overhauled and streamlined. Under the old standard, which was in effect for 47 years, each state required its own AOSP. With the updated standard in effect, states have the option of recognizing the AOSP of an airline from a different state of registry. Instead of the state requiring the full security program, a State Supplemental Procedure has been created to reflect any additional measures imposed on carriers by that state.

Furthermore, in September 2022, ICAO publicly shared guidance material into key security management functions that all stakeholders adopt but that was previously restricted. Additionally in 2022, Amendment 18 to Annex 17 was published. Significantly, this Amendment incorporates a higher recognition of industry best practices and expertise than was previously the case.

Conflict zones

Safety and security risks associated with hostilities within conflict zones are a major concern for airlines. A prime example are the wide-ranging airspace restrictions imposed on civil aircraft operators in and around Ukraine following Russia's invasion. The broader issue is the unhelpful mix of politics and aviation that is unrelated to safety concerns, but that has led to the inability of many airlines to operate over large parts of Russian airspace.

Africa and the Middle East remain regions of notable risks, as illustrated by the destruction of civilian aircraft during the 2023 hostilities in Sudan. States continue to issue Notice to Air Missions (NOTAM) to assist airlines in managing flight operation risk

exposure and avoidance. However, this approach remains largely an after-the-fact notification, lacking globally harmonized procedures, and varies between States in the types of restrictions applied.

IATA continues to support the development of policy that supports information sharing among states and between states and industry and the harmonization of restrictions and related areas via the Safer Skies Consultative Committee (SSCC). The SSCC has been focused on updating ICAO best practices related to conflict zones and capacity development when conducting risk assessments. To limit unintended reactive responses through greater civil and military information sharing, IATA, in partnership with the SSCC, hosts informal unclassified intelligence industry briefings on situations of evolving relevance. The ability to host such unclassified briefings puts important information into the hands of people who need it to conduct risk assessments in airspace security and safety.

Lastly, in 2022, IATA released its AVSEC Insight product, which is an open-source intelligence tool (see sidebar above).

IATA AVSEC Insight

IATA AVSEC Insight gathers risk-related information from a wide variety of sources, including niche and local-language news media as well as NOTAMs (Notice to Air Missions) and other official sources. It enables users to manage and identify business risks at an early stage, monitor them in real time, and conduct post-event analyses. The tool covers threats and continuity risks from natural disasters, civil unrest and protests, geopolitical developments, transnational crime, and cybersecurity to name a few. AVSEC Insight incorporates advanced machine learning and natural language processing capabilities to ensure the platform becomes more intelligent and robust as the dataset grows. Information can be customized by the user to risk profile and operational needs, by country, city, airport or flight information region (FIR). Better and faster identification of risk means safer and more secure operations and resource optimization.

Passenger Security

In 2022, IATA renewed its focus on highlighting redundancies and inefficiencies in the passenger security checkpoint process. In line with the IATA Global Passenger Survey results, IATA released a clear expectation statement on the adoption of evolving technology in passenger screening and overall improvements in the global baseline. Challenges remain, and the patchwork of security measures that offer zero trust and a lack of mutual recognition between airports for international connections on the following items persist:

● Screening Devices

Passengers pay a high price in terms of inconvenience at airport checkpoints—removing shoes, laptops, and liquids out of carry-on bags and strict limits on liquids and gels. States have been too slow in introducing advanced screening equipment that eliminates the need for these measures. The December 2022 announcement by the UK Government adds momentum to a development that has already occurred at airports in other countries, including Japan and Bahrain.

● Interstate Cooperation

Cooperation and information

sharing among States, and with industry, is not yet sufficient to ensure risk-based measures are applied in a timely and efficient manner. The policy framework exists to address this, but it will require aligning certification of screening technologies across national boundaries, more trialing of new technology with screeners and passengers, and the sharing of results. In sum, there needs to be better international support for innovation in passenger screening systems.

● Trust

Bilateral and multilateral trust has not achieved critical levels at passenger checkpoints. It is insufficient to eliminate wasteful duplication at intermediate points of the passenger journey, for example, and reviews of secondary security measures for continued relevance, such as gate screening, are far too rare. The gold standard is Canada/Europe where certain airports honor one-stop security without mandating transit and transfer screening measures. But even where agreements are in place that would permit expansion of this model, too many airports are not sufficiently coordinated and/or are unwilling to undertake the infrastructure and process changes that would be necessary to make it happen. In addition, some countries maintain immigration on arrival mandates that prohibit the ability for bilateral and multilateral adoption of one-stop measures, the United States being the prime example.

The risked-based approach A risk-based model has not replaced prescriptive one-size fits all approaches. Even without a clear link to risk or vulnerability, unilateral countermeasures still find their way into national regulations, such as secondary screening imposed on airlines. This was recently made evident by the recent law mandating that FAA impose a rule requiring secondary cockpit barriers for future aircraft deliveries in the United States, despite the effectiveness of existing post 9/11 cockpit door measures.

IATA also continues to maintain regular engagement with governments on the implementation of risk-based security for passenger and hold baggage security.

Aviation cybersecurity

Cyberattacks are increasing across all industries and aviation is no exception. Preparedness at the highest level is essential, especially in view of the rapid introduction of new digital technologies across the aviation value chain. Moreover, airlines and their supply chains need to ensure that they are able to comply with developing aviation cybersecurity regulations around the world.

IATA continues to work on standards and guidance material that aims to strategically strengthen the implementation of airline cybersecurity management programs while minimizing risks.

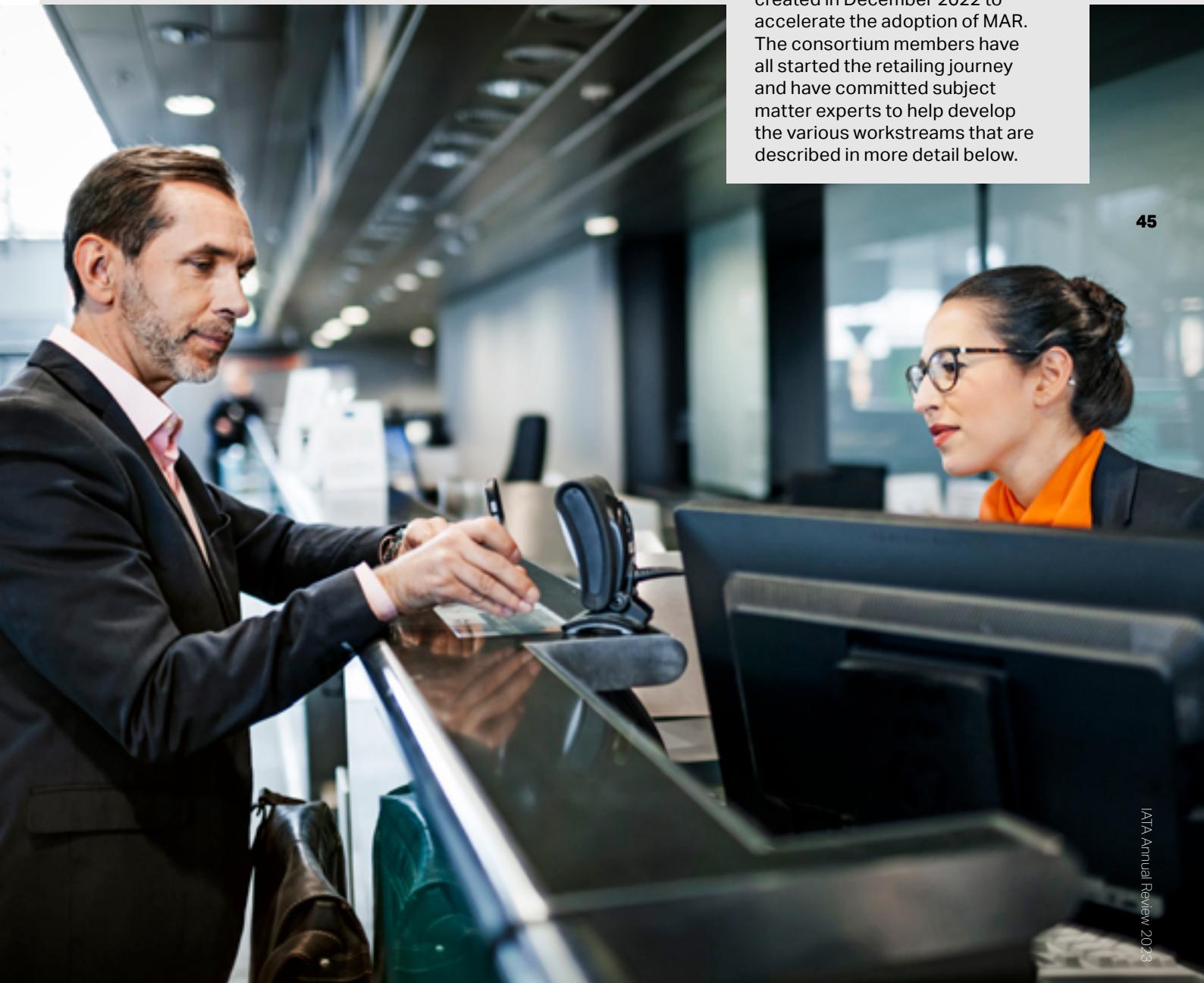
From a cybersecurity counter-terrorism perspective, the ICAO AVSEC Panel on Threat and Risks has raised the risk level of cyber-attacks from low to medium. Thus, countries are incrementally applying regulatory requirements for incident reporting and risk assessment obligations. Concurrently, non-sector specific ransomware risk has intensified, including automated data theft campaigns and targeted extortion operations against organizations.

Airlines, like all businesses, rely increasingly on technology and communications links across the supply chain. This extends to aircraft, which have complicated supply chains and, in operation, interact with many parties. Assessing and mitigating the risks requires cybersecurity by design, so that resilience is built into systems rather than added after they are in operation.

"Preparedness at the highest level is essential, especially in view of the rapid introduction of new digital technologies across the aviation value chain."

MODERN AIRLINE RETAILING

A world of 100% offers and orders

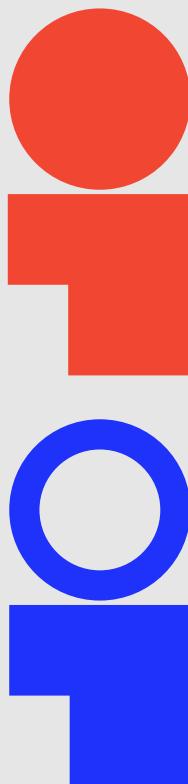


Modern Airline Retailing (MAR) was launched in 2022 to support airlines in their efforts to meet rising customer expectations brought on by customer experiences in the online shopping world. Those experiences cannot be met by the legacy standards, processes, and technology that underpin airlines' indirect sales and distribution. This initiative builds on the New Distribution Capability (NDC) standard but is more encompassing.

A consortium comprising 12 airlines / airline groups was created in December 2022 to accelerate the adoption of MAR. The consortium members have all started the retailing journey and have committed subject matter experts to help develop the various workstreams that are described in more detail below.



"IATA's One ID standard will allow passengers to streamline their journey."



Airlines and other travel industry suppliers will benefit from clear, digital identification of potential partners to make relevant dynamic offers to the seller at the other end of the transaction. Travel sellers, meanwhile, will be in full control of their own identity and information and will only have to disclose to the airline or supplier the relevant information required to request a tailor-made offer and complete a transaction. Stronger identity verification mechanisms will reduce fraud and provide end-to-end security in the transaction process.

Retailing with offers

Retailing with offers is the most mature pillar of MAR, made possible by the introduction of NDC. Some airlines already have over 30% of their indirect bookings coming through NDC channels. Because NDC is built on modern internet language, rather than the decades old EDIFACT standard, airline products can be displayed in indirect channels exactly as they appear on the airline's own website.

Major announcements underscore the pace of transformation. In April 2023, American Airlines removed 40% of its domestic fares from EDIFACT-powered channels. The fares are only available through direct or NDC-enabled channels. Given the size of the airline and the market, this represents an enormous development.

Finnair will end indirect ticket sales via EDIFACT channels entirely in 2025 and Air France-KLM has started to shift some price points to NDC and direct channels only. Air France-KLM also announced that by 2027 90% of their indirect sales will be through NDC channels.

A key benefit of NDC is the ability to introduce continuous pricing. Historically, using EDIFACT, airlines have been limited to just 26 fare classes (corresponding to the number of letters in the English alphabet). Rather than be restricted to 26 fare classes and the jump in prices that implies, continuous pricing means the customer can

Becoming a modern retailer

The MAR program is built on three pillars: digital identification of customers and participants in the value chain; offers using NDC standards; and standardizing fulfillment with a standardized order document. Each of these pillars is at a different level of maturity.

Digital identification

IATA's One ID standard will allow passengers to streamline their journey with advance information sharing and a contactless process at the airport based on biometric recognition. In turn, airlines can offer a seamless experience across different channels and touchpoints, including during the shopping process, should the customer choose to be identified.

Concurrently, as airlines move toward MAR and a world of offers, identification and codes for organizations in the distribution value chain need to adapt to a non-legacy environment to enable airlines to create offers based on the identity and profile of the seller involved. Several gaps have been identified in the existing identity process:

- Airlines are not able to fully identify all parties in the distribution value chain.
- IATA coding structures cannot scale to cover all parties.
- Codes do not provide end-to-end security and offer loopholes for fraudulent use and impersonation of identities.

access more acceptable price levels more often. Many airlines are testing continuous pricing, and a few have large scale results. Air France/KLM and United Airlines, for example, reportedly have 50% and 40%, respectively, of their dotcom and NDC sales continuously priced. There are estimates that the ability to hit consumer price points with more granularity could boost passenger revenues up to 4%.

Delivering with orders

The third pillar in the transformation to MAR is delivering with orders. Travelers will no longer need to juggle between different reference numbers and documents (passenger name records-PNRs, e-tickets and electronic miscellaneous documents-EMDs). They will have a single order detailing all that they have purchased. Airline internal processes surrounding revenue accounting and reconciliation, meanwhile, will be greatly simplified. Industry standards to support this transition have already been developed as part of the ONE Order project.

The changes go far beyond the passenger facing elements. Airlines rely on numerous systems to operate their commercial IT. The core system is the Passenger Service System (PSS), with reservation, inventory and departure control systems also vital. In a 100% offers and orders

environment, it is expected that the core IT will consist of Offer and Order Management modules that will be far less costly than operating a PSS for two main reasons: using Offer and Order Management modules will simplify some processes and new IT players are expected to provide more modern solutions, increasing competition.

Servicing and disruption costs are also expected to be reduced for airlines implementing Offer and Order Management modules and this will significantly improve the customer experience, especially in times of disruption. For example, today a rerouting means changing a booking, reissuing ticket(s) and also potentially rebooking ancillaries. This process will be significantly simplified in a world of orders.

According to a 2019 report from McKinsey, airline retailing has a value creation potential of up to \$7 per passenger. This is achieved through a combination of increased revenue and cost savings. Revenue benefits will include customers having much greater access to airlines' ancillary products and services and the increased sales stimulation potential from continuous pricing. On the cost side, there are anticipated savings from moving away from legacy IT to modern Offer and Order Management modules.

Consortium: Catalyst for transformation

The consortium consists of 12 airlines / airline groups: American Airlines, Air France-KLM, British Airways, Emirates, Finnair, Iberia, LATAM, Lufthansa Group, Oman Air, Qatar Airways, Singapore Airlines, Turkish Airlines and Xiamen Airlines.

The role of the consortium is to work together through IATA to accelerate the identification of the technical standards and pathways that take the industry to a world of 100% Offers and Orders.

To date, the consortium has developed a reference architecture that describes the business capabilities an airline will need in a world of offers and orders. The airline passenger service systems of today will need to be transformed into a typical retailing platform comprising offer and order management. The consortium has also delivered the business case for moving to this world, and by the end of 2023 will have delivered the potential transition pathways for airlines and examined the impact of this transition on other industry players.

"Travelers will no longer need to juggle between different reference numbers and documents. They will have a single order detailing all that they have purchased."



FINANCIAL SERVICES

Optimizing financial systems

The performance of IATA Financial Settlement Systems (IFSS) mirrored the accelerated post-COVID industry recovery throughout 2022. The systems played a critical role in facilitating the swift, secure, and reliable movement of funds across the air travel value chain during the crisis. In 2022, the IFSS processed \$363.3 billion, excluding \$18.5 billion in refunds, up 80.1% from \$201.7 billion in 2021, or \$185.8

billion excluding \$15.9 billion in refunds. It did so while maintaining extremely high levels of efficiency and security.

The Billing and Settlement Plan (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 airlines. In 2022, the BSP processed \$139.1

billion, net of \$18.5 billion in refunds, without which the amount would have been \$157.6 billion. This compared with \$58.8 billion in 2021 net of refunds, or \$74.7 billion including refunds. At the close of 2022, there were 152 BSP operations covering 180 countries and territories. Their overall, on-time settlement rate was 99.998%, compared to 99.997% in 2021. The default rate in 2022 was 0.007%, versus 0.005% in 2021.

Cargo Account Settlement System (CASS) simplifies the billing and settling of accounts between airlines and freight forwarders. In 2022, CASS processed \$66.1 billion, with an on-time settlement rate of 99.998%. This contrasts with \$57.4 billion and an on-time settlement rate of 99.999% in 2021. At the end



of 2022, 96 CASS operations were serving more than 250 general sales and service agents (GSSAs) and over 241 airlines.

Last year, IATA successfully deployed the modernized CASSLink invoicing system in the US air cargo market, in collaboration with its wholly owned subsidiary, Cargo Network Services. Deployments to other CASS markets are continuing

this year. Designed to meet the billing and payment requirements of the air cargo value chain, today and in future, CASSLink is the most price competitive solution in the market.

The IATA Clearing House (ICH) provides fast, secure, cost-effective settlement services to 495 airlines and associated companies in the aviation value chain. In 2022, the ICH processed

\$43.1 billion and had a settlement rate of 99.997%. In 2021, the ICH processed \$19.2 billion and had a financial settlement success rate of 100%. The on-time settlement rate was 100% for 2022 and 2021.

The IATA Currency Clearance Services (ICCS) is a global cash management system that enables more than 467 airlines to centrally control and repatriate their BSP and CASS sales, including from countries with severe currency liquidity issues. The ICCS processed \$36.7 billion in 2022 compared with \$22.5 billion in 2021.

Simplified Invoicing and Settlement (SIS) is a cost-effective electronic invoicing platform that is legally compliant in 45 countries. It enables the exchange of electronic data among airlines and between airlines and direct operating cost suppliers. The 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% in operating expenses. In 2022, SIS had more than 100,273 participants, including 455 airlines, 399 suppliers, 2,088 other entities (air operators, GSSAs, GSAs, etc.), and 97,331 IATA accredited agents. SIS processed over 1.35 million interline and supplier invoices during 2022 and settled more than \$56.9 billion compared with \$25.9 billion in 2021.

Enhancement & Financing (E&F) gives air navigation service providers (ANSPs) 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. E&F helps airlines avoid late payment penalties, reconciliation concerns, and disputes through a standardized billing process with a single point of contact for questions or disputes. In 2022, E&F processed \$2.9 billion versus \$2.0 billion in 2021.





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