IATA ANNUAL GENERAL MEETING

80th AGM and World Air Transport Summit
June 2-4, 2024

THE AGM ISSUE

CEO Interviews Emirates, Hong Kong Express Airways, Kenya Airlines
SPECIAL REPORT: Sustainability | Safety A record-breaking year
Payment Airlines take back control | Tax IATA opposes Article 8 changes
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The challenges to industry growth

IATA estimates that over the next 20 years, the industry will grow at about 3.3% per annum. That is significantly lower than the growth we witnessed during 2010 to 2019.

This reflects some of the challenges that airlines as an industry are facing and will continue to face:

- Infrastructure constraints both in the air and on the ground
- Supply chain issues, which have now been a feature of the industry for a number of years with no clear solution in sight
- Delayed deliveries of new aircraft
- Problems in relation to engines
- Labor shortages in some parts of the world
- The cost impact of our transition to net zero in 2050.

In addition, there is the challenge to decarbonize. Whatever way you look at it, there will be a cost associated with transitioning to net zero. And ultimately, that cost will have to be reflected in the ticket prices that we charge our customers. That will have a dampening effect on the level of growth that the industry sees going forward.

On net zero 2050

If you look at the CO2 produced by the industry in 2000 and compare that with 2019, just before the pandemic, our CO2 footprint increased almost 54%. But during that same period, passenger traffic grew 175%. So, there is a complete disconnect between passenger growth and our CO2 growth.

On European taxation

It is critical that politicians resist the temptation of cash grabs with new taxes that could destabilize the industry’s positive trajectory and make travel more expensive. In particular, Europe is a worry as it seems determined to lock in its sluggish economic recovery with uncompetitive tax proposals.

On SES2+ package deal

Failure. All we have to show for the years of SES2+ discussions to unite Europe’s skies is a grubby deal that sells out to narrow national interests and creates a few useless jobs for bureaucrats supported by the European political elite. Oblivious to the consequences, those involved will no doubt soon be patting themselves on the back. Meanwhile travelers, the environment, and airlines must prepare to pay with delays, higher costs, and unnecessary emissions.

On China and India

In 1990, the domestic market in China was just over 1% of all global activity and India about 0.2%. In 2023, the Chinese domestic market represented over 11% of total commercial aviation and India 1.8%. When you look at the demographics, it doesn't take much to imagine what is going to happen in these countries going forward, particularly in India. It represents a fantastic opportunity for the industry.
Dubai has announced a $35 billion development of Al Maktoum International Airport. This is a rare example of investment in major new airport infrastructure. With passenger traffic predicted to double within two decades, aviation stakeholders, including governments, must work with airlines and embrace such IATA initiatives as One ID to improve facilitation and ensure capacity bottlenecks do not disrupt the customer experience.
One-stop shop for net zero roadmaps

IATA has released the Aviation Net Zero CO2 Transition Pathways Comparative Review, in conjunction with the Air Transportation Systems Laboratory at University College London (UCL), the Air Transport Action Group (ATAG), the International Council on Clean Transportation (ICCT), and the Mission Possible Partnership (MPP).

This is the first publication to compare 14 leading net zero CO2 transition roadmaps for aviation. The report aims to provide a one-stop shop for airlines, policymakers, and all aviation stakeholders to better understand the key similarities and differences between the various roadmaps, and their visions for achieving net zero carbon emissions for aviation by 2050.

Specifically, the report compares the selected roadmaps in terms of their scope, key input assumptions, modeled aviation energy demand, respective CO2 emissions, and the emissions reduction potential of each mitigation lever (new aircraft technologies, zero-carbon fuels, SAF, and operational improvements).

“The Aviation Net Zero CO2 Transition Pathways Comparative Review demonstrates that there are multiple levers that can be used in different combinations to achieve the objective of decarbonizing aviation by 2050,” said Marie Owens Thomsen, IATA’s Senior Vice President Sustainability and Chief Economist.

“All these levers will be needed in aviation’s transition. Although the impact of each varies across the roadmaps, all roadmaps expect the greatest decarbonization in 2050 to stem from SAF. It is particularly important for SAF where strong and urgent public policy support is needed to increase production. Without that, no version of the roadmaps will get us to net zero carbon emissions by 2050.”
Digitalization leadership charter in air cargo

IATA announced the launch of the IATA Digitalization Leadership Charter at the IATA World Cargo Symposium in Hong Kong. Cathay Cargo, CHAMP Cargosystems, Global Logistics System (HK) Company Limited, IAG Cargo, IBS Software, LATAM Cargo, and Lufthansa Cargo are the inaugural signatories of the charter.

The Digitalization Leadership Charter aims to accelerate the air cargo industry’s digitalization journey by committing to five key guiding principles:

1. Developing a unified and collaborative digital strategy that champions interoperability and the use of global standards across the entire supply chain.
2. Enhancing organizational resilience through robust digital infrastructure and implementing strategies that safeguard against cybersecurity risks while ensuring the responsible use of generative AI.
5. Using new technology ethically.

Brendan Sullivan, IATA’s Global Head of Cargo said: “Digitalization is imperative for the air cargo industry...”

“By adhering to the Charter’s principles—adopting industry-wide standards, championing sustainability, ensuring ethical technology use, and upholding digital leadership—the charter sets a benchmark for excellence.”

ENHANCED TURBULENCE DATA

IATA is expanding the transmission of its Turbulence Aware data for use within industry-leading aviation solutions by The Weather Company, which serves a majority of North American commercial airlines and many others globally. With this enhancement, participating airlines can now access Eddy Dissipation Rate (EDR) turbulence.

Turbulence can impact crew and passenger safety, route planning, arrival and departure times, customer satisfaction, equipment maintenance and more. Combining IATA Turbulence Aware observations with forecasts from The Weather Company aims to better mitigate the impacts of weather and turbulence for contributing airlines globally.

In 2023, more than 380 million turbulence observations were generated. Thanks to the data provided by Turbulence Aware, over 700 million passengers have enjoyed a safer and more comfortable travel experience.

2018

IATA Turbulence Aware was launched in 2018 to help airlines mitigate the impact of turbulence, a leading cause of passenger and crew injuries.
Transforming Air Travel for 30 Years - and Counting

30 years ago, we started our journey with loyalty systems. Today we have evolved into a comprehensive Cloud-based SaaS suite of software solutions that is unparalleled.

Hitit proudly celebrates its 30th year, maintaining a consistent momentum in the Airline and Travel IT sector - alongside a vast ecosystem spanning nearly 50 countries, empowering 70+ airlines, 700+ airports and 30,000+ travel agencies. We combine decades of experience with an agile team and innovative technologies, continuously expanding and pioneering Offer & Order transformation, to deliver the most innovative, relevant services to the industry.

Hitit’s 30th Anniversary of:

☑ Experience and High-Tech Solutions
☑ Pioneering & Sustainable Technologies
☑ Digital Transformation and Agility
Strengthening the CEIV Pharma program

IATA and the global collaborative platform Pharma.Aero have joined forces to strengthen IATA’s Certification for the Excellence in Pharmaceutical Handling (CEIV Pharma) program, the globally recognized certification for excellence in pharmaceutical-product handling. Over a two-year period, the two organizations conducted a thorough study of the CEIV Pharma program, involving certified entities, pharmaceutical manufacturers, and professionals within the air logistics sector. The findings were published in a whitepaper.

This project identified a number of opportunities within the program:
- Building awareness by increasing engagement with authorities to ensure the ongoing integration of global best practices into the program.
- Increasing visibility of IATA CEIV Pharma within the life science manufacturing sector.
- Expanding the network to make it more accessible to smaller enterprises and in underserved markets.
- Enhancing IATA ONE Source, an industry platform for validated aviation capability and infrastructure information to enable integration with other platforms.

NEW REPORT HIGHLIGHTS WORK ON SINGLE USE PLASTICS

IATA released the Reassessing Single Use Plastics Products in the Airline Sector report to assist airlines, regulators, and the airline supply chain to mitigate the environmental impacts of single use plastic products (SUPP).

This publication is timely as the UN Environmental Program (UNEP) has convened an intergovernmental negotiating committee (INC) to develop an international legally binding agreement on SUPP use by end 2024. SUPP are widely used in aviation due to their strength, lightness, and ability to meet safety and security regulations. However, the airline sector faces challenges associated with improved cabin waste performance and the replacement of SUPP with sustainable alternatives. The absence of smart regulation continues to constrain airline efforts to improve the sustainability of cabin operations. Collaboration across the aviation value chain is vital to enable the adoption of circular economy principles and to facilitate the reduction and replacement of SUPP that is necessary for reducing waste and increasing material recovery.

The IATA passenger insights survey (November 2023) showed that more than three quarters of passengers would feel better about flying if it did not involve any SUPP. This report was prepared by IATA with support from Travel Without Plastic and WRAP.

Did they really say that?

“Honestly, I do not believe that when people put on a mask, used surgical masks or used sanitizing gels and wipes during the COVID pandemic, that they realized that they were probably only available because they were flown in.”

Richard Forson, CEO, Cargolux

“The reality is that aviation’s role as an essential catalyst for development is not as visible as it needs to be at the international or national level. Air connectivity will continue to be an enabler of the broader development agenda. And we will need to do an even better job of helping people to see practical examples of what this means.”

Juan Carlos Salazar, ICAO Secretary General

2024 FACE-UP WINNER

The IATA FACE-UP award for 2024 went to Erik Goldenstein. FACE-UP is a competition for recent university graduates who have developed innovation and transformation solutions in air transport logistics. Goldenstein created the NE:ONE Play app built on the ONE Record Data Standard. The app provides a visualization of ONE Record data giving a very simplified overview of complex air cargo data. This allows organizations to browse through their shipment data as easily as browsing the web, facilitating optimization of their operational processes.
The Middle East’s commercial aircraft services market will more than double in value to $28 billion by 2042, according to Airbus’ latest Global Services Forecast (GSF).

The region will get more than 3,000 new aircraft through 2042, according to manufacturers’ forecasts.

Forecast 2024 profit for airlines in the Middle East

$3,100,000,000

416,405 flight movements

Dubai International Airport is connected to 262 destinations across 104 countries through 102 international carriers. In 2023, it handled a record 416,405 flight movements.

Source: Dubai International Airport
Airlines in the Middle East saw a **33.3% passenger traffic** rise in 2023 compared with 2022. **Capacity increased 26%** and **load factor climbed 4.4 percentage points to 80.1%**.

In 2022, travel and tourism contributed **9% of the United Arab Emirates’ GDP**.

Source: United Arab Emirates Ministry of Economy

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**Growth in international CTKs (YoY) by airline region of registration**

- **Indonesia**: 12.4% (Feb 2024), 19.6% (Jan 2024)
- **Africa**: 21.9% (Feb 2024), 15.4% (Jan 2024)
- **Asia/Pacific**: 11.2% (Feb 2024), 21.9% (Jan 2024)
- **Europe**: 15.6% (Feb 2024), 17.0% (Jan 2024)
- **Middle East**: 20.9% (Feb 2024), 23.9% (Jan 2024)
- **Latin America**: 3.2% (Feb 2024), 14.1% (Jan 2024)
- **North America**: 13.4% (Feb 2024), 8.1% (Jan 2024)

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**Regional contribution to industry annual total RPK growth**

- **Feb-23**: 59.4%
- **Mar-23**: 54.0%
- **Apr-23**: 46.6%
- **May-23**: 39.1%
- **Jun-23**: 31.4%
- **Jul-23**: 26.8%
- **Aug-23**: 28.2%
- **Sep-23**: 30.1%
- **Oct-23**: 30.7%
- **Nov-23**: 29.0%
- **Dec-23**: 24.2%
- **Jan-24**: 18.7%
- **Feb-24**: 21.5%

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Data from [airlines.iata.org](http://airlines.iata.org)
To meet the growing demand for aviation, larger aircraft and improved airport capacity are needed just to match the ambition of Emirates and other airlines, according to Sir Tim Clark, President of Emirates.

How disruptive are the Boeing issues to your strategy?
We have a huge $50 billion-plus order for Boeing 777s and 787s. We have big plans for the future and have to be tough on those partners with whom we have agreements in place.

The delays we are seeing—I don’t expect us to get our first new B777 before 2026—mean we must retain and refurbish our existing 777s.

Sir Tim Clark, President of Emirates, says equipment and infrastructure need to match the demand for sustainable long-haul services.

INTERVIEW BY GRAHAM NEWTON
I have been worried by the Boeing governance model for many years. They have undergone personnel changes but there needs to be a strong engineering background in its leadership and operational model. It’s how they do things on the shop floor that needs to be addressed. They should listen to the workers.

We had the same thing at Airbus with the A380. There were two IT systems that didn’t speak to each other, and it was the engineers on the floor that sorted that out.

The fact is we only have two widebody manufacturers, and supply chain issues have been going on for too long. They do need to sort it out because they have demand coming out of their ears and airlines are desperate for an efficient supply chain in new aircraft and associated services.

**Can Middle East aviation continue to grow?**
All the big Middle East carriers have been expansive in their approach and yet still experience extraordinary growth. Etihad tried to normalize its operations but had to reverse that decision as demand was so strong.

Now, Saudi Arabia is spending billions on its economy, and you know that will lead to strong aviation demand. There is Riyadh Air and Saudia, but they will do well just to serve a portion of that demand. We will all benefit from what Saudi Arabia is doing.

You also have to remember that the region has one of the most robust GDPs on the planet because it is at the epicenter of so many global initiatives. Yes, there are geopolitical concerns but overall, there will be strong growth and plenty of demand for everybody.

**Are you confident that the industry can reach net zero carbon emissions by 2050?**
When the target was introduced, I thought it was driven by external players, such as technology companies and governments. Aviation is doing as much as it can—and we have at least 50% fewer per seat emissions compared to the early jets.
But airlines are heavily dependent on OEMs in airframes and engines. The Boeing 777X will deliver 10% lower fuel use and emissions but that delivery has been delayed. And none of us can do anything about fossil fuels, which have an energy density that is difficult to replicate in an economically viable way.

Sustainable aviation fuels (SAF) are great, but we produced about 500,000 tonnes in 2023 and it is difficult to know how the scale-up will work out given the limitations of our current feedstocks. And you also have to think about the fuel bill. What will that be if we achieve 5% or 10% SAF in 2030?

Even so, we have severely reduced carbon emissions levels. There is nobody who isn’t aware of what we need to do or who doesn’t agree with the general principle of being environmentally responsible. And where you have awareness, you will find progress.

Emirates has an eco-hotel in Australia, for example, that opened in 2009. We didn’t have to do that, but we knew we could and should do it.

The airline industry is trying to do its best and there are many good examples of our work from the macro to the micro level. I also think we have been influential with our partners and governments, and you are beginning to see them respond to our efforts. And we have done so much good in connecting communities and providing social and economic benefits too.

Time will tell whether we reach net zero by 2050 but, in the meantime, aviation has a good story to tell, and we should be better at telling it. We need to reach out beyond politicians and governments who are in their positions for just a few years and ensure our customers and partners know what we are doing to be sustainable. If we tell our story well, we will get the support we need.

Where will you source SAF and how will you get them to Dubai?
There are many entities looking seriously at building refineries in the United Arab Emirates (UAE) based on shipped-in SAF. India is nearby, for example, and has good potential for feedstock provision.

Also, the Abu Dhabi National Oil Company (ADNOC) is developing alternative fuels and spending lots of money on research and development into e-fuels. That research will lead to refinery production.

Remember, we are a thriving aviation market that continues to make money and enjoy strong growth, and so companies will certainly be minded to supply us with SAF.

**Does diversity make business sense or is it just the right thing to do?**
If a human being brings value to a business, why discriminate against them? I can’t imagine why anybody would think differently.

We are a socially conservative society in the UAE, but Emirates’ middle management is 39% female, and women represent 15% of executive management. They also account for 56% of new joiners and 55% of those promoted. There is no wage imbalance. We have equality in pay, equality in opportunity.

Any business that struggles with that will fail. Because if you have irrational prejudices in your workforce selection then you have an irrational strategy and that will be your downfall.

**Will artificial intelligence (AI) have an impact on aviation and is it any different to the technological upgrades the industry continually implements?**
Basically, AI is about computing power. When you have enough power, you can take vast amounts of data and construct models around that about what you should or shouldn’t do.

We use AI all the time. We use it in revenue optimization, for example, to get information on every flight, every day.

AI will be a disruptor and there is a concern about what will happen when we rely on machines. But this is about human intelligence too. How do we employ AI in our lives and businesses?

In future, I wouldn’t be surprised if AI...
enabled us all to work a three-day week and yet create more wealth and more equitable distribution of that wealth. That means people will travel more, we will use more AI to facilitate that, and we will do it all sustainably. AI will turn out to be a good thing.

Is the industry behind the curve in terms of customer expectations? Aviation is moving at pace when it comes to customer service. People will be blown away by what we can offer in future, including the younger generations. There will be huge improvements because every airline is looking to enhance its service; we all compete, and the customer will definitely benefit from that.

How would you frame the airline sector’s relationships with airports and air traffic management? Can these relationships be improved? It’s different in Dubai because we are fully integrated and aligned in our vision. But it’s true that in other countries you have fractious relationships. With airports, there is increasing interest from the private sector. Where you have private capital, you get demands from investors and companies can be merciless in how they respond to those demands. And, of course, that can affect the customer—the airlines.

I understand the need to get a return, but you must also address the industry’s realities and how it is affected by external circumstances. And you must look at the customer experience at the airport too. Passengers should not have to go through hell on earth just to board a flight. Most importantly, airports have to find a way to process ever-increasing amounts of passengers. As for air traffic management (ATM), we all know that there is so much that could be done to make airspace more efficient, which would save fuel and emissions. The service could be so much better. But this is largely in the hands of states, and they are the ones that will have to rethink the whole approach to ATM.

Is there any challenge you think will have an impact on the industry but is currently under the radar? I am concerned that in our pursuit of environmental goals we are too focused on single-aisle operations, and medium and long haul will just have to rely on old aircraft and SAF. Remember, there is no viable transportation alternative for long-haul flights. Going toward 2050, we will only have the A350 and the B777. Let’s assume that it takes about 15 years to develop an aircraft—and in fact, the new B777 will be longer than that. That means, even if we started today, we won’t get a new aircraft this side of 2040 and that will be an aircraft that will take us through the 2050 deadline and fly until 2060. And there is no evidence that such an aircraft is being worked on, on either side of the Atlantic. We must look at the technology in the latest single-aisle aircraft and scale that up.

One answer is that as demand increases and supply falls, prices will go up. But nobody wants that, and it would have enormous consequences for trade, the global economy, and social connectivity. Or we design aircraft, engines, airports, and airspace that accommodate demand in an environmentally responsible way. And we start doing that today. The better way forward seems obvious to me.
The airline industry is approaching $1 trillion in annual revenue and yet is still characterized by the slow evolution of personalized services seen in many other aspects of retailing.

Airline customers, especially the younger generations, are used to bespoke offers, on-demand entertainment, and digital processing. But airlines, held back by legacy systems and unstructured data, struggle to offer what is commonly available elsewhere.

This is why the move toward Offer and Order management is so vital. “Imagine the potential if we could close the widening gap between customer expectations and the customer experience,” says Alex Mans, Founder and CEO, FLYR. “Airlines need innovative technology partners to help make this potential a reality and FLYR can help close that gap today. Based on One Order standards, FLYR is here to help the early movers win.”

The need for data
Mans cites the difficulties that airlines face to manage mountains of data, disparate record keeping, and limited system integration as the main challenges. A lot of information is still in flat text or EDIFACT, the legacy messaging system. When records are in such a poor state, it is difficult to make meaningful progress. The systems that sit on top of this data can’t function fully and that makes implementing future advances, such as artificial intelligence (AI), problematic.

“Airlines are also having to deal with limited competition in terms of companies that can help airlines transition to superior data management and an Offer and Order environment,” says Mans. “When that happens, the speed of implementation slows down and the price goes up. That’s why FLYR has entered the market—to give airlines a better option.”

How it works
FLYR has taken a modular approach so airlines can choose whichever application works best for them. Every module or box is constructed with an open architecture to connect as required, even to legacy systems or other vendor products.

The overall process is simple. Creating an offer requires the product and price to come together with personalization. Then, if the offer looks good to a customer, the airline receives an order and fulfils the promise of its offer together with the requisite partners.

A product catalogue, pricing engine, and stock keeper all play a part in this process and an orchestration layer coordinates stakeholder activity.

“Airlines need the flexibility to pick and choose what works for them,” explains Kartik Yellepeddi, FLYR’s VP, Product, Offer and Order. “Some airlines want all the boxes, some want to build certain elements in house, and some may look to multiple vendors for a best of breed approach.

Where possible, FLYR uses industry standards to communicate within and between boxes. If it isn’t possible, FLYR is looking to create open standards to enable complete interoperability. Importantly, modularity isn’t confined within boxes but can incorporate other suppliers and partners. For example, one key enabler for personalized offers is richer content, including hotels and attractions. Airlines realize this and are building a brand as a gateway to their home country. FLYR’s modular architecture caters to enabling third party content providers and aggregators to help airlines provide such services to their customers.

Legacy translator
“The key module right now is our legacy translator,” says Yellepeddi. “This acts as a bridge between older systems and our new modules built on modern standards. We understand that the entire industry won’t move to Offers and Orders in a single day.” FLYR’s legacy translator works across multiple bespoke systems, though the main translation is from EDIFACT and teletype to XML standard.
messaging, such as NDC. FLYR is also aware of most quirks in passenger service systems (PSS) and global distribution systems (GDS).

In fact, non-technical considerations are often more problematic. “Imagine connecting to an event,” says Yellepeddi. “All the commercial aspects, such as the commission or volume of sales, must be converted into rules that the offer engine can understand.”

Despite the challenges, strong drivers are pulling the industry forward. Many airlines have restructured following COVID and leadership from outside the industry has become commonplace. These leaders have often brought a better understanding of the retail world and a strong customer focus. Airlines are also hiring retailing skills in other positions to better understand loyalty and personalization. FLYR’s job is to enable these skills to shine.

“Airlines want content on every channel and want to partner where they deem fit,” concludes Mans. “We need to help them grow revenue, reduce cost, and gain the capabilities expected by the end user.

“The first step is the difficult one but there is no time to lose. We are seeing a critical mass of early movers in the Offer and Order environment, and there will soon be a massive paradigm shift in the market. Before the end of 2024, I believe we will see at least one airline transition off its PSS. Offer and Order is here today.”

For more information: Visit the website at https://flyr.com/airlines/offer-and-order/

“Imagine the potential if we could close the widening gap between customer expectations and the customer experience” Alex Mans, Founder and CEO, FLYR
A record-breaking year for safety

IATA’s 2023 Annual Safety Report for global aviation reveals several “best-ever” results, demonstrating that flying remains the safest form of transport.

Although there were 37 million aircraft movements in 2023 (jet and turboprop), a 17% increase on 2022, there were no hull losses or fatal accidents involving passenger jet aircraft in 2023. There was, however, a single fatal accident involving a turboprop aircraft, resulting in 72 fatalities.

**Report highlights include:**
- The all-accident rate was 0.80 per million sectors in 2023 (one accident for every 1.26 million flights), an improvement from 1.30 in 2022 and the lowest rate in over a decade. This rate outperformed the five-year (2019-2023) rolling average of 1.19 (an average one accident for every 880,293 flights).
- The fatality risk improved to 0.03 in 2023 from 0.11 in 2022 and 0.11 for the five years, 2019-2023. At this level of safety, on average a person would have to travel by air every day for 103,239 years to experience a fatal accident.
- IATA member airlines and IATA Operational Safety Audit (IOSA) registered airlines did not experience a fatal accident in 2023.
- The single fatal turboprop accident compares with five fatal accidents in 2022 and an improvement on the five-year average (2019-2023), also five.

“The 2023 safety performance continues to demonstrate that flying is the safest mode of transport,” says Willie Walsh, IATA’s Director General

The **all-accident** rate for airlines on the IOSA registry in 2023 was 56% better than the rate for non-IOSA airlines (0.69 vs. 1.08)
Safety performance
General. “Aviation places its highest priority on safety and that shows in the 2023 performance. Jet operations saw no hull losses or fatalities. 2023 also saw the lowest fatality risk and all accident rate on record. A single fatal turboprop accident with 72 fatalities, however, reminds us that we can never take safety for granted. And two high profile accidents in the first month of 2024 show that, even if flying is among the safest activities a person can do, there is always room to improve. This is what we have done throughout our history. And we will continue to make flying ever safer.”

For most regions, the 2023 all accident rate improved compared with 2022, with North America and Asia Pacific being the exceptions. No regions experienced a jet hull loss in 2023. Asia-Pacific recorded a fatal turboprop hull loss, a loss-of-control accident in Nepal in January 2023 with 72 fatalities. As a consequence, all regions except Asia-Pacific recorded a fatality risk of zero in 2023.

Regional results

North America: The all-accident rate rose from 0.53 per million sectors in 2022 to 1.14 in 2023 but remained better than its five-year average for the region of 1.21. The largest proportion of accidents in 2023 were related to landing gear collapses.

Asia-Pacific: The all-accident rate increased from 0.56 per million sectors in 2022 to 0.78 in 2023, but was better than the five-year average for the region of 1.06. The fatality risk rate per million sectors increases for Asia-Pacific operators from 0.00 in 2022 to 0.16, owing to the fatal accident in Nepal in January 2023.

Africa: The all-accident rate improved from 10.88 per million sectors in 2022 to 6.38 in 2023, better than the five-year average of 7.11. In 2023, there were no fatalities. This region has had no jet hull losses or fatal accidents since 2020. Additionally, 2023 marked the fifth occurrence of Africa reporting zero fatal turboprop accidents, with the first instance recorded in 2015. Under the Focus Africa initiative, IATA introduced the Collaborative Aviation Safety Improvement Program (CASIP) to enhance aviation safety in Africa. CASIP partners with states to increase implementation of ICAO Standards and Recommended Practices (SARPs). The Global Aviation Safety Plan (GASP) as well as the AFI Regional Aviation Safety Plan for Effective Implementation (EI) of ICAO SARPs have increased the minimum SARPs implementation threshold to 75% or greater (from 60%). Only 12 of Africa’s 54 states meet this new threshold, indicating the need for significant improvements.

Middle East and North Africa: The all-accident rate improved from 1.30 accidents per million sectors in 2022 to 1.16 in 2023 and was also better than its five-year average of 0.96. Although no accidents were related to Global Navigation Satellite System (GNSS) interference, it has emerged as a critical area of concern in the region.

Commonwealth of Independent States: The all-accident rate improved from 2.16 accidents per million sectors in 2022 to 1.09 in 2023. This rate is better than the region’s five-year average of 3.19 accidents per million sectors. Note that CIS sectors may undergo larger revisions than normal once actual flown sectors become available. This will affect accident rate as well as fatality risk calculation.

Europe: The all-accident rate improved from 0.98 per million sectors in 2022 to 0.48 accidents in 2023. This rate is better than the region’s five-year average of 0.77 accidents per million sectors. The region has had a fatality risk of zero since 2018. The largest proportion of accidents were related to landing gear collapses.

North Asia: The all-accident rate improved from 0.45 accidents per million sectors in 2022
to 0.00 in 2023. This was better than the region’s five-year average of 0.16 accidents per million sectors. The fatality risk rate improved from 0.23 in 2022 to 0.00 in 2023.

Latin America and Caribbean: In 2023, the region reversed an increase in accidents from the previous year. The all-accident rate per million sectors improved from 4.47 in 2022 to 0.37 in 2023, better than the five-year average of 1.91.

Safety culture
A strong safety culture within the aviation industry is essential for continuous improvement in all aspects of operations. Creating an environment that encourages the transparent and timely reporting of incidents and accidents is essential to be able to identify systemic issues and prevent future occurrences. IATA is actively working on two fronts to bolster this effort:

Enhancing Airline Safety Culture
In 2023, IATA introduced The Safety Leadership Charter, designed to reinforce organizational safety culture through airline executives committing to the eight IATA safety leadership principles. To date 45 airlines have signed the charter.

Encouraging States to Provide Timely, Comprehensive and Public Accident Reports
An IATA analysis of accident investigations from 2018 to 2022 showed that just over half are investigated and published as prescribed by the Chicago Convention. The shortfall in compliance prevents the aviation industry’s various stakeholders from accessing vital information that could significantly improve flight safety.

“Safety enhancements and the prevention of future accidents stem from learning from past incidents,” concludes Walsh. “For airlines, this means cultivating a robust safety culture where every employee feels accountable for safety and is motivated and expected to report safety-related information. For states, it involves providing timely, comprehensive, and public accident reports. Out of 226 accidents in the past six years, only 121 final accident reports have been made available. This shortfall is not only a blatant disregard for the Chicago Convention but also undermines the safety of our passengers and crew. Governments and their agencies must step up their efforts.”
A BREAKTHROUGH IN MANAGING JET FUEL PRICE VOLATILITY

Gus Majed, CEO, Paratus talks to Airlines about the significance of jet fuel price risk insurance.

The Ukrainian crisis pushed prices of refined product to record levels, and cemented the view that our insurance offering is essential to the global aviation industry. The need to manage the impact of underlying jet fuel cost on balance sheets has never been more evident.

**Explain why the industry needs jet fuel price risk insurance?**

First, let’s look at the challenge. A major international airline lifts about 110,000 barrels per day (bpd) of jet fuel, at an annual cost of $4-$5 billion. The notional cost of managing such risk by an expert firm would be around $25 million (0.5% of gross risk).

In 2016, for example, one major airline found itself looking at an abyss of a $12.6 billion derivatives hedge loss. Some 250 million barrels of oil derivatives had been purchased at $90 per barrel, an attempt to negate the uncertainty caused by the Libyan civil war. By 2016, with a ferocious OPEC price war well underway, Brent crude prices had collapsed to $30 per barrel. The airline was haemorrhaging cash and, crucially, suffering reputational damage.

Even the most sophisticated corporates find derivatives overly complex, costly, time-consuming to monitor, and difficult to access. It is ill-advised to enter into complicated derivatives instruments without the specialist oil trading infrastructure to handle the risk, which is both substantial and difficult to quantify.

**How did you solve this challenge?**

After extensive research, market analysis and development, we built a talented team of experts across energy, insurance and technology to develop the product and create the world’s first energy price risk insurance company, regulated and licensed by the Guernsey Financial Service Commission (GFSC).

The Paratus policy is simple to understand, the insurance premium is paid up front and fixed at the start of the policy. There are neither hidden costs nor margining fees, the policy is customised to the client’s requirements and can be adjusted mid-term. Additionally, subject to the jurisdiction, the policy premium is tax deductible. Finally, we manage the entire process on our proprietary platform.

The Paratus insurance product removes the need to deal with costly, complex, time-consuming, and often opaque traditional hedging products.

We partner with airlines to mitigate adverse energy price movements, profit and loss, and balance sheet risk to protect revenue and
together to devise a fused solution that sits within an insurance regulatory framework. The solution is an elegant but simplified insurance product that is easy to scale across a fleet. We developed a dynamic and innovative product that we believe will solve one of the aviation industry’s biggest challenges, energy price risk.

Can you tell us about Paratus?
Paratus is regulated and licensed by the GFSC and, as part of our regulatory licensing, we are required to always hold sufficient collateral to pay any potential claim on our books.

Paratus Aviation Insurance Limited transfers risk to particular Underwriters at Lloyd’s (rated “AA-” (Very Strong) by Standard & Poor’s and “AA-” (Very Strong) by Fitch Ratings), which enhances the financial security we offer our clients worldwide. Our distribution partners are regulated by the relevant jurisdictional regulators. Paratus is a portfolio company of ARA Partners, a $6 billion private equity firm focused on industrial decarbonisation.

Paratus is incorporated in Guernsey, the largest European (re)insurance hub. We wrote the world’s first ultra-low sulphur marine fuel price policy in 2021, and recently launched Paratus & Partners, an energy price risk specialist insurance broker, authorised and regulated by the FCA.

Our mission is to accelerate decarbonization by driving the transition to renewable energy and sustainable fuels.

How does the policy work?
A Paratus policy insures airlines against jet fuel prices rising above a set level over a period of cover and a defined volume. It reduces the impact of jet fuel price volatility on balance sheets. The policy pays claims when the fuel price increases above a set price level (the trigger) up to and including a maximum set price (the cap). The trigger and cap are selected by the insured for a given period (usually monthly).

Why hasn’t this been done before?
Traditionally, energy price risk and insurance specialists have never come together to provide solutions like this.

For more information:
Visit the website at https://www.paratusltd.com/
From the Greater Bay Area (GBA) to Mainland China, the ever-increasing demand for air travel in these two regions alone offer significant expansion opportunities for Hong Kong Express Airways.

Can you tell us about your growth plans for HK Express?

After a long pandemic, our borders opened in early 2023. We then went from 10% of our pre-COVID traffic levels to 100% in just seven months. That set the stage for future growth.

In April 2024, we were at 140% of our pre-COVID traffic and we’ll reach 170% by the end of the year. Obviously, we need to add to the fleet to achieve that. HK Express is taking delivery of a new aircraft every 40 days. We have 36 aircraft in the fleet as of April 2024, including five new A321neos. The fleet will be 40-strong by the end of the year.

This means our network is expanding from 23 to 30 destinations in 2024. And at that point the third runway at Hong Kong International Airport (HKIA) will be fully operational. Taken together, it gives us a unique opportunity to grow.

Why is your on-time performance so important to you?

The on-time performance makes us really proud. We are top of the rankings in Asia and third in the world among low-cost carriers (LCC). On-time performance is paramount for a LCC because we need to maximize utilization and minimize delays.

And this is not only about our efficiency—we know every minute counts for our customers too. So, this is a key differentiator for us and an important reason why our customers choose us.

Of course, it takes a relentless effort behind the scenes, but a reliable, punctual seamless operation is an important key performance indicator (KPI) for an LCC. We believe it is one of our main competitive advantages.

Why is now the right time to expand and what are the opportunities in the Mainland China market?

As mentioned, we have completed our recovery, there is a third runway and there are plenty of other developments in the Greater Bay Area (GBA), such as the Hong Kong-Zhuhai-Macao bridge, which are bringing people into HKIA. We see this as a golden period for growth and, as the only LCC based out of HKIA, we must grasp that opportunity.

The GBA is an extended market for us with a population of 86 million. And we are witnessing significant growth with about 150,000 passengers coming from GBA to travel with us every month. That’s 1 in 4 of our passengers.

At the same time, there is huge demand for air travel generally and Asia will drive that
growth in the years ahead. The demographics are changing, disposable income is increasing, and LCCs are increasing their share of their market. So, HK Express is well placed.

In Mainland China, some 340 million people have taken a flight at some point. But that means more than 1 billion people haven’t! The percentage of people who have flown is therefore much lower than the global average. Mainland China is a huge market with enormous potential, especially for a LCC that is focused on competitive fares as we are.

We’re also seeing an easing of visa requirements between Mainland China and Southeast Asian countries. That will further stimulate the market.

A final element to this is the need for a more balanced network. Right now, 70% of our flights are to North Asia, 25% to Southeast Asia, and just 5% to Mainland China. We have recently announced Beijing Daxing and Sanya as Mainland China destinations, with the addition of Bangkok Don Mueang in Thailand, so we are trying to find a better balance.

Are you confident that you can attract enough staff, including pilots, to fuel your growth?
We only have a population of 7 million in Hong Kong, so China is not just a promising consumer market but also a good market for
The on-time performance makes us really proud. We are **top of the rankings in Asia** and **third in the world** among low-cost carriers (LCC). On-time performance is paramount for a LCC because we need to **maximize utilization** and **minimize delays**.

us for staff. About 10% of our crew are from Mainland China.

We need to recruit about 500 crew and pilots this year but by end April 2024 we had already hired about 160, so we are on track. And we are not just recruiting from Hong Kong or China. We search for talent wherever it may be.

Moreover, HK Express is an attractive proposition. It has a bright future with a young, diverse team. There are 45 nationalities among our 1,400 employees. This ability to overcome the manpower shortage is another competitive advantage for us.

**Can you tell us about your experience as a female airline CEO and your recommendations for improving diversity in the industry?**

At HK Express, our overall team composition is about 50-50 but, of course, we want that across every department at every level.

Female airline CEOs are still a minority, but at the last IATA AGM I was pleased to meet several other female CEOs. We had interesting discussions on how to improve female numbers in senior management.

Several studies have shown that diversity improves your bottom line. It is a smart business decision. But we do need more flexible working policies. Most women would appreciate a better understanding of their needs and an appropriate balance between their personal and professional life.

We also need more role models so that young women can aspire to similar positions in their organizations. There must be more good news stories about women in business and more mentors. I have joined a mentorship program at a local university to help.

**What is the secret to keeping costs low and where are the opportunities for cost savings in future?**

As a LCC, we fully recognize that effective cost management and having a competitive cost base is of paramount importance. So, one of our six strategic pillars is a relentless cost and lean focus. Not cost reduction, but an increase in cost efficiency.

The key to increasing cost efficiency at HK Express lies in our adherence to three principals: simplicity, efficiency, and agility.

Simplicity is the key for a LCC. Focus on the direct sales channel, have minimal fleet types, a single cabin, and so forth. This naturally leads to cost efficiency, but you must examine all other aspects of the business too, such as increasing aircraft utilization and productivity. And agility is about being quick in the market and responding appropriately.

Cost consciousness is part of our culture. It starts with me and goes throughout the organization. We are all held accountable for costs and have clear KPIs at every level.

Finally, you will never know how good you are unless you look out. Benchmarking regularly is really important to understand where you might have gaps. Always look out for best practice.

**What technologies excite you and what would like to see implemented as soon as possible?**

I think my excitement extends beyond a single technology. Rather, I am excited by the culture of innovation. We leverage AI and data to enhance operational efficiency, deepen our insights into customer behavior and preferences, and improve the customer experience.

Technology must serve a business purpose. It must help us overcome the business pain points.

**In general, do governments understand aviation?**

We are lucky that the Hong Kong Government
is committed to strengthening Hong Kong as a leading international aviation hub. It is a priority for them, and aviation is also emphasized in the central government’s 14th Five-Year Plan.

But we operate throughout Asia and need the other end of journey to support what we are doing if the aviation ecosystem is to develop fully and be efficient.

Governments need to understand the industry’s challenges and look at its evolution, such as increasing the use of self-service options and other digital transformations to tackle manpower shortage issues.

It is also observed that there has been a notable rise in customer acceptance and willingness to engage with these self-service technologies post-pandemic. I think active engagement between governments and the industry is important as this promotes understanding and cooperation.

How important is sustainability and what efforts are you making in this regard?

An LCC is sustainable by design. We maximize operational efficiency and minimize waste.

HK Express is committed to a sustainable future through continuous improvements in fleet modernization, greener operations, waste management, and customer engagement.

The most important element for us is our new aircraft, which offer up to 20% improvement per seat in fuel efficiency. But we have many other initiatives too, such as introducing carbon reduction initiatives into pilot operation procedures, eliminating single use plastics, and recycling materials inflight and at the office. We also encourage customers to pre-order food to eliminate as much food waste as possible. And we have run an offset scheme for customers since October 2023 that has offset 1,570 tons of CO2 so far.

As for sustainable aviation fuels (SAF), the Cathay Group has a target of making SAF 10% of total fuel consumption by 2030. HK Express is still exploring its opportunities. SAF supply is limited, so the price is high. And as mentioned, we are very cautious about cost. SAF is only about 0.2% of total global fuel, so we need more supply and more choices to bring the price down.

Again, it requires collaboration between governments, industry, and regulators on a global scale to make this happen.

What other regional challenges would you highlight?

The first is the normalization of passenger yields. We have handled the pent-up demand following the pandemic and yields are on a downward trend. But I wouldn’t describe it as a reduction, more a normalization.

However, costs are rising. We see operating costs going up. Inflation, fuel, staff wages, and supply chain issues are all pushing up cost.

Then there is the geopolitical situation. Airline performance is clearly linked to geopolitical and economic uncertainty, and there are a lot of unknowns at this moment in time.

But I am sure we have the right business models to respond. Cathay acquired HK Express in 2019 as part of its dual-branding strategy to serve the full spectrum of travel needs. Cathay Pacific remains a premium, full-service carrier and we serve the more fare-conscious market. That gives us a strong platform and a strong brand identity.

We will continue to navigate the complex aviation landscape with a focus on a safe, sustainable, and efficient service.

In Mainland China, some 340 million people have taken a flight at some point. But that means more than 1 billion people haven’t! Mainland China is a huge market with enormous potential.
Sustainable aviation fuels (SAF) are critical to the industry’s long-term future. The good news is that the SAF market has been doubling or tripling over the past few years and the speed of production and uptake is increasing. But this is off a low base and the growth is concentrated on a few markets with supportive policies.

“Voluntary demand currently plays a large role, but it is difficult to scale up and hard to rely on,” says Sven Rieve, Aviation Sustainability Manager at Air bp. “It doesn’t matter whether it is mandates or incentives, we need policies that reduce the price gap between SAF and conventional jet fuel and reduce the uncertainty in the market.”

Fortunately, two major markets have regulations in place that should provide a further boost to the SAF market. In the United States, the Inflation Reduction Act contains incentives for renewable energies and from January 1, 2025 Europe will insist on SAF making up 2% of the overall fuel uptake, part of its ReFuelEU initiative. Moreover, the United Kingdom is expected to follow suit. The EU policy builds on existing policy in Norway, Sweden and France. The 2023 conference on alternative fuels (CAAF/3) also approved a global 5% reduction in carbon intensity by 2030.

The need for co-processing

Aside from policy support, Rieve notes that feedstock limitations have to be addressed. E-fuels—synthetic fuel produced using renewable energy to make SAF, which have the potential for significantly reduced lifecycle carbon emissions—are still a decade or more away at scale. The industry mainly depends on the successfully commercialized HEFA pathway, which uses waste and residue feedstocks, a finite resource.

“We have to increase the feedstock pool because the technology that doesn’t rely on those feedstocks is still not fully commercially available,” Rieve informs. “There are oil-based plants that can be grown between vegetation seasons, cover crops like Carinata. Acceptance is limited but growing, and the European Union is sending positive signals for acceptance. That would drive an increase of available feedstocks for use with existing technology, and in turn that suggests costs will come down.”

Rieve also highlights co-processing as a force for good. Refineries can co-process 5% approved renewable feedstocks alongside crude oil streams to meet the industry’s ASTM D1655 jet fuel standard. This is already possible at bp’s Lingen refinery in Germany and Castellon refinery in Spain.

The advantage of co-processing is that it doesn’t require as much financial investment as standalone plants and it can leverage the 600 or so refineries in the world. Moreover, these refineries already have distribution solutions in place. bp’s
“Demand will likely outstrip supply in the short-term, which is why we need co-processing and an increase in feedstocks”

Sven Rieve, Aviation Sustainability Manager at Air bp

experience in this field puts it in a prime position to make economical SAF available to the industry.

“We are also working with various partners, including regulators, to increase the limit of renewable feedstocks from 5% to 30% for co-processed SAF,” says Rieve. “That will benefit the entire industry.”

**Standalone plants**

Rieve says standalone SAF plants will still be vital to the industry meeting its net zero target given their ability to produce 100% renewable SAF. Though only a handful are producing today, there are more either in construction or planned.

“We are working across the board on technical, policy, and supply chain issues to ensure airlines get the SAF they need to meet their sustainability commitments,” says Rieve. “Aside from strongly supporting efforts to attain a 30% blend in co-processing, we worked with Virgin Atlantic on its 100%-SAF flight across the Atlantic. And we’re a signatory to Clean Skies Tomorrow and many other initiatives.”

Rieve concludes that to help the industry in the short term and to ensure a sufficient SAF supply to 2050 and beyond, a variety of measures will be needed.

“Demand will likely outstrip supply in the short-term, which is why we need co-processing and an increase in feedstocks,” he adds. “There are seven recognised SAF pathways and two co-processing pathways, but we will need more. We also need to ensure SAF availability across the regions and the certainty that comes from the right policies. At Air bp we will continue our efforts to try and ensure roadblocks are minimized on the way to net zero.”

Weaning the world off fossil fuels
With the world still relying heavily on carbon-based energy sources, it is a tremendous challenge for aviation to get to net zero by 2050 but it provides the most amazing opportunity.

Reaching net zero carbon emissions by 2050 will require collaboration throughout the aviation value chain and beyond. It will also necessitate government and relevant authorities setting stable policies that encourage the adoption of decarbonization technologies and initiatives.

On the face of it, says Marie Owens Thomsen, IATA’s SVP Sustainability and Chief Economist, fulfilling these conditions seems a distant prospect.

First and foremost, despite the accepted need for renewable energies, support for fossil fuels continues. “Fossil fuel is at the heart of our society and not just aviation,” she says. “We need to wean the world off fossil fuel. It will take a complete systems change that involves every country and every industry. We must bring people together, go across government departments, across borders, and across industries. The energy source is the problem and that is common to us all.”

And existing fossil fuel subsidies continue to skew investment decisions. Simply, it is too easy to make a profit in fossil fuel. “You can’t expect people to behave irrationally,” says Thomsen. “So, any good policy that is truly looking to achieve decarbonization will have to change the investment parameters.”

The year of elections

Compounding the problem is the fact that most countries have taken a step toward isolationism—a lingering effect of the pandemic worsened by the current geopolitical situation. This has pushed energy security
Support for energy producers

Even good legislation has some devil in the detail. The US Inflation Reduction Act has done much to incentivize SAF production and uptake. Although it made $400 billion of lending available for SAF plants at preferential rates, to get a loan a company needs an up-and-running demonstration plant that has been successfully performing for 1,000 hours. The logic is that taxpayers’ money shouldn’t be exposed to a commercial risk.

But, of course, for a project to get to such a mature stage takes enormous time, money, and effort. The money is not flowing through the pipeline at the pace the industry needs.

“We are not asking for money for airlines,” stresses Thomsen. “We are asking for public support for energy producers to produce renewable energy. We need production to scale up fast. SAF production needs to increase 1000-fold from its 2023 level to meet the requirements predicted for net zero 2050.”

On a positive note, this is achievable. Wind and solar energy are now the cheapest forms of energy thanks to the (subsidized) investments made and the developments in technology.

It took approximately $150 billion per year to develop wind technology, which equates to IATA’s estimates for the investment needed for aviation’s decarbonization.

This is an affordable sum. The IEA suggests that an investment of about $400 billion per year in the oil industry will allow the world to meet its fossil fuel needs through 2050. As of 2023, some $800 billion is being invested, twice as much as experts suggest is necessary. “That puts the $150 billion for SAF in the proper perspective,” says Thomsen.
“And SAF is the big-ticket item for decarbonization,” she continues. “All roadmaps regarding aviation’s transition agree on this point. Airlines are signing agreements left, right and center, but this is an industry that will have maybe a 3% profit margin in 2024. It is fanciful to expect airlines de-risk the investments of the energy companies and the banks whose profit margins are 10 times higher.”

SAF must compete with other renewable energy products for refinery time. Today, SAF is about 3% of renewable fuel production while jet fuel is typically about 8% of refined oil production. It is estimated that refineries will need to devote about 25% of renewable fuel production to SAF for sufficient quantities to be produced to hit net zero.

“Again, it is possible,” says Thomsen. “If we electrified road transport, for example, which is well within our capabilities, that would free up enormous amounts of refinery space.”

She concludes that global leadership must take a holistic approach to sustainability.

“This is a systemic problem and can’t be left to a ministry of transport but rather must involve finance, energy, agriculture, and much more. It is a tremendous challenge, but it is also the most amazing opportunity. And an opportunity is how it should be viewed because that is the mindset that will get us to net zero by 2050.”

Refineries will need to devote about 25% of renewable fuel production to SAF for sufficient quantities to be produced to hit net zero.
doesn’t mean HEFA technology will disappear altogether, especially with the emergence of bio-crude solutions like hydrothermal liquefaction (HTL) and Pyrolysis (PoTJ) technology, which can be treated in HEFA facilities. But a diversification of technology will be necessary to untap an even broader range of feedstock across geographies.

Fischer-Tropsch and Alcohol-to-Jet are viewed as more scalable pathways, due to their ability to leverage a wide range of globally abundant, available, low-value waste sources resulting in lower operational costs.

“It means that aviation can be a catalyst for fostering a circular economy built on waste feedstock resources, where SAF becomes the added bonus at the end of the process, with aviation’s long-term demand for the fuel underpinning the financial viability of the projects.” says Bloch.

Longer term, e-fuels are the big-ticket item. When combined with renewable energy that powers an electrolysis process, e-fuels have the potential to save or abate more carbon throughout the production process than is ultimately emitted. ReFuelEU calls for 1.2% e-fuels by 2030, which is the equivalent of approximately 700,000 tonnes per annum or roughly 10 commercial scale facilities.

Although it is a more expensive route, the importance of e-fuels is globally recognized and reflected in an increasing interest in the technology. IAG has a 14-year offtake agreement with SAF producer Twelve, which will supply advanced e-SAF made from made from CO2, water, and renewable energy. Twelve will supply IAG with a total of 785,000 metric tons of e-SAF to support IAG airlines.

“The role of e-fuels can be a game changer, and these technologies are essentially future-proofed,” says Bloch. “By definition, its feedstock is near-on infinitely abundant, and directly targets one of the key drivers of climate change. It’s hard to forecast the rate of innovation, but history tells us that we will probably get there faster than we think.”
But decarbonization is not a zero-sum game. Aviation decarbonizing **means nothing** if other industries don’t get access to the renewable fuels they need to achieve their climate goals” — Daniel Bloch, IATA’s SAF Specialist

**Renewable fuel production**
With the existence of capital and technology looking strong, the aim is to ensure refineries produce SAF. About 40 countries have plans for commercial SAF production by 2030 and that number will continue to grow year on year.

Even so, last year SAF only accounted for about 3% of renewable fuel production, relative to other products in a typical biorefineries product slate, such as renewable diesel.

Considering the Third Conference on Aviation Alternative Fuels (CAAFA3) agreement, which agreed a 5% reduction in carbon intensity by 2030, aviation will need approximately 14 million tonnes of SAF, which may require something closer to 20% of overall renewable fuel production.

“In saying this, we must remember that decarbonization is not a zero-sum game,” Bloch suggests. “Aviation decarbonizing means nothing if other industries don’t get access to the renewable fuels they need to achieve their climate goals. But other sectors with easier access to alternative propulsion, like electrification or hybrid-cells, should be encouraged to adopt these avenues quicker. This would free up sufficient biorefining capacity for hard to decarbonize sectors like aviation that are more reliant on renewable fuels.”

**Book and Claim**
The final element in ensuring SAF uptake is book and claim, which enables the de-coupling of the physical SAF and its associated environmental benefits. This particularly benefits airlines in geographies without relevant biorefining capacity in the short to mid-term.

IATA intends to deliver an interoperable book and claim ledger system for the industry, capturing each of the various systems in place globally along with all vital information, such as the SAF feedstock, pathway and lifecycle CO2. This will create a clear, verifiable and global SAF book and claim registry. The environmental attributes can then be confidently claimed throughout the entire supply chain.

Corporates, for example, will be able to use the system to ensure their environmental, social and governance (ESG) reports are accurate and verifiable. Shippers will be able to do the same, as the system will cover the cargo sector too.

And importantly, the system will be crucial for airlines reporting for CORSIA purposes.

IATA aims to have a pilot running later this year with the intention to have it fully implemented by early 2025. Six airlines have signed a letter of intent to assist in pilot. Governments and two SAF fuel producers have also agreed to join.

“Book and claim remains vital, but we want every market to have its own SAF industry, because of its ability to protect, restore, and enhance environments, create jobs and regional development, and deliver local energy security,” says Bloch. “But in the meantime, we don’t want to ship SAF long distances just so an airline can physically use it. A SAF’s emission savings are largely captured in the lifecycle, so we can be agnostic to where the SAF is used. In turn, there clearly is a need for an interoperable book and claim ledger system for the industry, to ensure no airline is left behind.”

Bloch concludes that no single player will be able to ensure SAF production and uptake. Rather, it will take airlines, governments, financiers, producers, and customers working together, each taking partial responsibility for the risk and premium.

**SAF demand goes from strength to strength**
Airline interest in procuring sustainable aviation fuels can be seen from the number of agreements taking place. A small selection from this vibrant market shows the scope of demand:

- **Korean Air Lines** announced a partnership agreement with Japanese global logistics company Yusen Logistics for a SAF cooperation program for cargo.
- **Japan Airlines** has signed a partnership agreement with Yokohama City to establish and implement a system for collecting used cooking oil from households for its utilization as SAF feedstock.
- **Neste and Amelia**, a French regional airline, have closed an agreement to supply SAF.
- **Norwegian** has become a co-owner of Norsk e-Fuel.
- **Spain’s Cepsa and Apical Group’s Bio-Oils** have begun building the largest second-generation biofuels plant in southern Europe, producing 500,000 tonnes of renewable diesel and SAF per year.
- **In Canada, Azure Sustainable Fuels Corp.** could produce around 20,000 barrels per day of mainly SAF with first production targeted for 2027.
- **There are now 22 corporate partners in the United Airlines Ventures Sustainable Flight Fund,** which will drive SAF production through investments in startups.
- **LanzaJet** opened LanzaJet Freedom Pines Fuels, the world’s first ethanol to SAF production facility, which will produce 10 million gallons of SAF and renewable diesel per year.
Breeding confidence in carbon capture

Carbon capture has been earmarked by the Intergovernmental Panel on Climate Change (IPCC) as a critical component in limiting the average global temperature rise.

Carbon capture can take place at source—such as at a big industrial plant—where streams with high CO2 concentration are captured and effectively locked away over geological time spans.

Or carbon can be taken directly out of the atmosphere via giant fans, a filter, and a chemical process that produces a CO2-depleted stream of air that is released back into the atmosphere—a process known as Direct Air Capture (DAC). The carbon can again be stored in a suitable geological location or used in other processes, such as the production of power-to-liquid sustainable aviation fuels (SAF).

In 2023, DAC had about a 20% share of purchases in the durable carbon removals market, mostly consisting of offtake agreements.

Airlines have started getting involved in the sector by buying carbon dioxide removal (CDR) credits and investing in carbon dioxide removals technologies. United Airlines has announced a $5 million investment in carbon capture technology company Svante, All Nippon Airways (ANA) has signed a purchase agreement for CDR credits with US company 1PointFive, and Swiss International Airlines and the Lufthansa Group have entered into a partnership with Swiss company, Climeworks.

“We are very proud to be the first airline in the world to collaborate with Climeworks and make this substantial contribution to the scaling up of a technology that should help take the airline sector a long way towards achieving its net-zero objective,” says SWISS CEO Dieter Vranckx.

But this is a sector still in its infancy. By 2030, there is expected to be about 6 million tonnes of DAC operating capacity and yet in 2050 the amount of residual emissions from the aviation sector is expected to be 500 million tons of CO2.

In other words, the CDR industry will need to grow exponentially to abate these emissions together with other market-based measures. That will take a huge amount of funding. Many DAC companies, in particular, have the challenge to move their technologies from research and development to trials to commercial activity.

Offtake agreements are one of the major sources of funding for DAC and other technologies and that support will be vital to the commercial scale-up necessary to meet the demands of the air transport sector.

Greater investment and competition will also bring down the price, which can be between $600–$700 per tonne today, far more than carbon offset credits.

Policy decisions and the proper regulatory framework will also help. In the United States, there is a tax break in DAC facilities, and an EU certification framework for CDR credits has been published—an important step forward.

Track Net Zero
Track Net Zero is an IATA system that collects sustainability data at the industry level to verify aviation’s progress.

Information needs to be captured in an organised fashion so that the industry has clear metrics that can be compared. The basic idea is for airlines to report to IATA, which will aggregate it to reveal the industry’s performance.

“The industry will be challenged on its green credentials and so Track Net Zero will be an incredibly important industry tool,” says Michael Schneider, IATA’s Assistant Director, Environmental Programs. “It will provide us with robust, primary data whereas other organisations will be relying on theoretical models to calculate airline emissions.”

The methodology has been devised and tested and data collection has started. The first report is expected to be published early next year and thereafter it will be an annual exercise.
Aviation is committed to tackling non-CO2 emissions, including contrails and nitrogen oxides (NOx). However, despite extensive studies, significant uncertainties exist when attempting to predict individual contrail formation and their specific climate impact.

“Contrails can be warming, cooling or even both depending on atmospheric conditions,” explains Alejandro Block, IATA’s Manager, New Energies and Technologies. “But there is no doubt that on an aggregated global level, contrails have a warming impact.”

Exactly how warming is unknown, however, as is the timescale on which the effects occur. The limited science on the subject to date has produced a wide range of possibilities. And this is for contrails en masse, never mind trying to determine values for an individual contrail. The complexity of factors involved, from atmospheric conditions through to the number of aircraft flying, or what would happen if no aircraft were in the area, makes precision almost impossible.

At the moment, only scattered weather balloons are providing any measurements and so enormous generalizations are having to be made. “As a result, correlation between models and actual contrail formation is poor and can be as low as 50%,” says Hemant Mistry, IATA’s Director, Energy Transition. “And that is no better than flipping a coin.”

So, if a contrail avoidance strategy is introduced based on modelling, there could be unintended consequences. An aircraft might take an unnecessary detour, adding to what are certainly more harmful CO2 emissions.

“Also, the contrail affects the climate for a matter of hours and carbon emissions affect the climate for centuries,” says Mistry. “Somehow, these timeframes have to be related in appropriate metrics.”

Sensors
Step one, therefore, is to improve the contrail prediction models and that requires more data than can be provided by the weather balloons.

“Together with key stakeholders, IATA is exploring putting sensors on aircraft,” informs Block. “Not every aircraft would need to be equipped, perhaps 20 or 30 per region, but even so there are costs, and certification and performance aspects must be considered.”

Sensor upgrades are also required as humidity at cruising level is very low and difficult to measure. A flight could cross an ice super-saturated region (ISSR)—a likely contrail forming region—in a matter of minutes and so the sensors need to be fine-tuned for a rapid response. In fact, none of the

One of the biggest uncertainties in non-CO2 emissions is the unknown warming effects of contrails.
nine sensors identified by IATA were deemed ready to be deployed immediately for the purpose of contrail climate impact mitigation.

IATA also notes that any trials to gather scientific evidence for non-CO2 emissions at this stage should aim to avoid additional CO2 emissions. It also calls for governments to keep funding research activities, particularly on model improvement.

As for Monitoring Reporting and Verification schemes—such as that proposed by the European Commission—these must prove the cost effectiveness of the measure in terms of climate mitigation. Moreover, the results should be able to be validated and verified, which is easier said than done. A satellite, for example, won’t pick up a contrail immediately—and matching a one-hour old contrail to a specific flight in busy airspace can be challenging.

“We do want to act now, but action means maturing research, experimenting, exploring, and developing solutions,” says Mistry. “There are no solutions ready for implementation today.”

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**Contrail formation**

The creation of contrails is dependent on ambient conditions, mainly temperature and humidity. Ice super-saturated regions (ISSR) are the main concern. Studies report that most ISSRs are in the range of 100km–400km in horizontal extension, with most around 150km. They are commonly 600m–800m thick. ISSRs last from 6 hours to 24 hours. On average, an aircraft would take about 10 mins to fly through an averagely sized ISSR.

In these regions, ice crystals don’t sublimate immediately but absorb more atmospheric water vapor and grow laterally and horizontally. Anything lasting more than 10 minutes is known as a persistent contrail; these can then be spread by winds to form contrail-cirrus clouds. At any point in time, these aircraft-induced cirrus clouds form about 0.06% of the sky, although in high-traffic regions like the North Atlantic it could be up to 10%.

But this is a simplified version of an extremely complex topic. The angle of the incoming solar radiation, the optical thickness of the cloud, the surrounding atmosphere, whether the cloud is above the ground or the sea, and the wind are just some of the many factors in the equation.
positive contribution to this SDG target by improving circularity in the air.”

Plastic awareness
Even though the food situation constitutes an egregious and unnecessary waste, it is single-use plastic products (SUPP) that are hitting the headlines.

IATA surveys highlight the growing awareness of SUPP. The passenger insights survey conducted in November 2023 showed that more than 75% of passengers would feel better about flying if it did not involve any SUPP, and that they would be happy to support fewer food and beverage options to help airlines achieve this.

Moreover, the IATA Shipper Survey 2022 showed that 50% of cargo customers include waste reduction along the supply chain among their top priorities and cargo operators are receiving requests from end customers to reduce the associated plastic packaging and wrapping.

For aviation, replacing SUPP is far more challenging than it seems, however. SUPP are strong, light and meet safety and security regulations. Finding sustainable alternatives is difficult.

Godson highlights four main concerns:
1. There are no sectoral lifecycle assessments on inflight products, so airlines cannot determine if the alternative is better or worse for the environment.
2. Different national bans on SUPP stop airlines from having global replacement programs.
3. There is no guidance on the integrity and sustainability of alternatives.
4. The cost and availability of alternatives.

“One member airline reported testing 24 different plastic free cups and, though all could hold hot beverages, wine and beer, all leaked when neat alcohol was used,” says Godson.

SUPP report
To support airline work, IATA has published Reassessing Single Use Plastics Products in the Airline Sector. The report stresses the need for a sectoral approach to managing SUPP in aviation and contains a clear set of recommendations for airlines, regulators, and the sector’s value chain.

It also discusses the balance airlines must find as they search for SUPP alternatives. Introducing reusable items as a strategy to drive circularity must be handled carefully, for example.

Aside from logistical changes, airlines must also account for the impact on fuel burn and carbon emissions, should the reusables weigh more. This may not amount to much on short haul flights but on long haul it could make a significant difference. Reusables also require cleaning, storing, and transporting to and from the aircraft. There are also safety and hygiene issues to consider.

“There is an educational element to all this,” advises Godson. “We need to educate passengers that they can refuse unwanted meal offerings, amenity kits and headsets; participate in airline and airport recycling initiatives; and understand the trade-offs of replacement. Reusables seem an obvious choice but there are environmental and financial costs associated with the replacement of SUPP.”

The report further proposes that airlines improve waste management by facilitating onboard and ground waste segregation and recycling. Waste composition audits for passenger and cargo operations provides the data to support the business case for circularity initiatives.

In conjunction with the report, IATA conducted an inventory of the most used items in the cabin and in cargo. From that, five items were identified (PET bottles, cutlery, crockery, cups, cargo sheets) that are difficult to replace, and the report offers potential alternatives considering complete lifecycle assessments.

“Finding alternatives to SUPP requires a harmonized regulatory framework, and the promotion of sector-wide collaboration,” says Godson.
Explainer: Sustainability

Circularity in the air. The challenge of food waste and single-use plastic is a growing cost and regulatory burden that airlines are working to solve.

Data source: IATA Cabin Waste Composition Audits 2023/2024

- **Cabin waste**: Total of 4.7 million tonnes of waste per year – equivalent weight to 8,000 A380s
- **34%**: Untouched food and drink = 34% of all cabin waste (other 66% = paper/plastic etc.)
- **78%**: Of passengers are concerned about Single Use Plastic (SUP) in the cabin
There’s a vast number of different—sometimes conflicting—rules on cabin waste which make it very hard for airlines to recycle.

Why do airlines still use SUPP? There are some good reasons—it can be lighter, cleaner and safer.

0.94kg of waste per passenger per flight

$6bn TOTAL WASTE COST

Explainer explained
Airlines recognize the importance of reducing, reusing, and recycling cabin waste from their flight operations to reduce their environmental footprint. The challenging nature of flight operations including short turnaround times, shortage of space in the cabin, lack of clarity on waste costs and regulatory restrictions placed on catering waste from international flights by many countries, compounds this waste problem. In the absence of smarter regulation, cabin waste volumes could increase significantly in the coming years. IATA supports the simplification and harmonization of cabin waste regulations and promotes technical solutions that will reduce industry costs and contribute to the circular economy.
World OVERFLIGHT RISK CONFERENCE

The inaugural World Overflight Risk Conference 2024 aims to unite the global aviation community, providing a platform to collectively address and navigate the dynamic challenges posed by overflight risk.

All profits of this event will go to the charities supporting the families of the victims of the MH-17 and PS752 disasters.

2-4 July 2024
Warsaw Renaissance Airport Hotel, Poland

Key Themes
- Strategic insights into overflight risk management
- Collaboration and innovation for a safer operational environment
- Addressing challenges in airspace near conflict zones

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THE CFM CUSTOMER EXPERIENCE

Customers power the service provided by joint venture company CFM International.
An open, competitive MRO ecosystem.

LEADERS AREN’T BORN.
THEY’RE ENGINEERED.

CFM MRO turns more than just wrenches. It also turns heads in the boardroom. Our open, competitive MRO ecosystem is unique in the industry because it gives you choice. You decide where to overhaul your LEAP engines, meaning competitive pricing and more flexibility. Another reason to say LEAP. By example.
SETTING STANDARDS FOR CUSTOMER SUPPORT

CFM International’s LEAP engines power the world’s narrowbody fleet, which means continuing support and servicing.

Bringing a sizable advantage in terms of operational cost, fuel burn, and emissions over the predecessor CFM56, LEAP engines also benefit from a state-of-the-art support system.

This commitment to customer support—known in CFM as the customer experience because of the company’s holistic approach—begins before the engine’s entry into service and continues through the lifecycle of the aircraft in service.

“Anticipation and preparation were the keys to the success of our customer experience with LEAP,” says Stephane Thomas, Head of Support & Services Engineering, Safran Aircraft Engines. “We used our knowledge from the CFM56, which is the biggest commercial engine fleet on the planet, and that gave us an incredible foundation on which to build.”

The support structure

CFM is committed to its customers. Safety is always the top priority, but keeping the assets flying reliably comes a close second as does the lifecycle cost of ownership for customers. CFM is fully aware that airlines operate in a fiercely competitive market and every penny is crucial.

The two key elements of the customer experience cover the physical and virtual worlds. There are some 250 on-site teams, known as Field Service Engineers (FSE), and these engineers are always the first port of call. CFM can deploy both “Expert” and
“SWAT” FSEs to maintain reliability, minimize significant engine events, and reduce delays and cancellations.

In addition, CFM provides virtual support through customer support centers—based in Bengaluru, Cincinnati, Paris, and Shanghai—that monitor CFM engines 24/7 and are available for immediate feedback. These teams also work with spare parts teams and material warehouses to dispatch key parts required for line maintenance to support CFM’s utilization advantage.

“Backing this up are customer support managers, one for each customer,” says Jayesh Shanbhag, General Manager, Customer Experience, GE Aerospace. “They are there as the first point of contact for our customers. At a minimum, we work to give the customer exactly the support they signed up for. Hopefully, we go beyond that.”

Customers can also lean on fleet program managers, who take a more holistic view and can point out industry trends. If two or more airlines report a similar problem, for example, fleet program managers can inform other customers by building a field plan and working closely with engineering and product teams.

Underpinning all this is extensive training. State-of-the art training schools in China, France, India, and the United States cover every aspect of engine maintenance, including line maintenance, fan balancing, borescoping, and other skills. Expert instruction in hands-on procedures is supported by computer-based courses.

Predictive maintenance

Despite this extensive support structure, the aim is to ensure maximum time on-wing for LEAP engines. Predictive maintenance is therefore vital. CFM customers enjoy the lowest extended Aircraft on Ground (AOG) rate in the industry—just 1.2%.

Every LEAP engine provides data to CFM centers in real time. “But you then need to marry that data to design parameters so what you have is more than a diagnostic,” says Shanbhag. Also feeding into this process are inspection results from maintenance planning documents (MPD), enabling a tailored approach to each engine.

Machine learning and artificial intelligence (AI) crunch the information into actionable results. During flight, an oil filter might be showing an anomaly, for example. The customer will immediately be informed to check the filter within, say, five flights or 30 days. This helps the customer avoid disruption and a more costly repair. The intent is to help CFM customers with planned versus unplanned maintenance activities.
CFM International: Sponsored Feature

AI and a world-class engineering team, we are developing new analytics all the time.”

Even so, humans still play a role. FSEs are not purely reactive but rather ensure the asset is optimized. That means they can advise on technical details, such as a customer’s most efficient engine temperatures for its operations, helping to reduce the maintenance burden, or something as simple as ensuring covers are put on when a sandstorm is predicted.

Sustainability
Commitment to the customer experience also requires a commitment to sustainability, a topic that no company can ignore. CFM is driving sustainability across all aspects of its operations, but the big-ticket item is ensuring its engines are as fuel efficient as possible.

In design, LEAP engines offer a 15% fuel efficiency advantage over its predecessor, the CFM56. But reveals Thomas, “in the field we are seeing up to a 20% improvement. We’re over-delivering. But we’re always thinking about fuel efficiency. Thanks to real-time data, we can see how airlines are flying their aircraft and we can advise if they are not maximizing the engine.”

CFM is also reviewing its global supply chains and global maintenance network to minimize travel for parts and people. Shop visits, for example, are being optimized to ensure the carbon footprint is minimized.

“Customers expect us to improve on the standard of the latest generation of the CFM56, so we had to achieve a new level of engineering and support,” says Jayesh Shanbhag, General Manager, Customer Experience, GE Aerospace. “LEAP will take the same path as the CFM56 in terms of longevity and continuous upgrades, but its starting point is so much higher.”

Thomas concludes that the enormous success of the LEAP engine, with well over 8,000 engines delivered, is firstly about the reliability of the original design. But the support is integral to everything that happens after the initial delivery.

“We are looking at all areas for sustainability improvements, from repairs to products to operations,” says Thomas. “We’re even introducing a new service that will help customers optimize their routes to reduce CO2.”

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“The reason that customers choose the CFM LEAP is not just the quality of the product from a safety and sustainability perspective,” he adds. “They chose us because CFM supports them throughout the entire engine lifecycle. Time on-wing is always the key and we keep assets in the air, which is when airlines are making money. And when aircraft are on the ground, we are there to ensure costs are minimized.”

An integrated approach to attract top talent
Servicing the LEAP into the future means recruitment is a vital factor in customer support. Fortunately, neither GE nor Safran is experiencing any difficulty in getting the people they need. The product has been an incredible success and emerging talent want to work on it.

“We are about people as well as cutting-edge technology,” says Shanbhag. “It is an integrated approach that attracts talent.”

Building on the success of the CFM56
The customer experience for the LEAP engine is built on the organization’s knowledge from the CFM56. With some 26,000 engines in service, the CFM56 is the largest commercial fleet on the planet. That incredible scale of information has allowed the LEAP project to mature quickly.

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Sponsored Feature: CFM International

THE ADDED LAYER OF AN OPEN, EXTERNAL MRO ECOSYSTEM

Service levels for customers are developing and improving all the time.

CFM’s customer experience structure covers every aspect of engine maintenance, repair, and overhaul (MRO). But the success of the LEAP engine necessitates a level of support beyond anything the company has delivered before.

Shop visits for the CFM56 engine are peaking at about 2,500 per year some 30 years after its introduction. LEAP engines will achieve between two and three times that level of success and it will happen a lot quicker due to the speed of sales. Peak LEAP engine SVs are forecasted to be a multiple of the CFM56 rate around the mid-2040s.

CBSA network
Building on the highly successful model used to support the CFM56 fleet, CFM is expanding its open MRO ecosystem to assist with the workload. This was always in the plans, so the CFM Branded Service Agreement (CBSA) ecosystem is already established and comprises five of the most reputable names in the industry:

- Air France Industries KLM Engineering & Maintenance
- Lufthansa Technik
- ST Engineering
- StandardAero
- Delta TechOps (LEAP-1B overhaul capability only)

“As the market evolves, customers will need options,” says Alan Kelly, General Manager, LEAP Services for GE Aerospace. “And those options drive competition, which will benefit our customers.”

There are also five additional licensed shops to support the fleet. CFM grants its licensees the right to use its Intellectual Property (IP), with some limits, under specific commercial terms. Most importantly, each licensee must give the same level of support as CFM. Data sharing, CFM people on the ground, and all the usual key performance indicators ensure that this is the case.

“But the incentive is to exceed the standard because that is what will give a partner a competitive advantage,” says Kelly.

Maintenance event forecast
To improve service levels further, Safran and GE also independently conduct maintenance event forecasts.

These are becoming increasingly sophisticated and combine all the usual parameters, such as fleet growth and industry trends, with CFM’s extensive data collection activities. The results are contrasted with what is known of the supply chain, the labor market, and other factors to estimate exactly what will be needed to serve the LEAP fleet over the coming years.

“When we started the LEAP program, GE and Safran each had a shop capable of basic overhauls,” reveals Pierre-Yves Bourquin, Vice President, CFM Services, Safran Aircraft Engines. “Today, there are

CFM RISE

CFM RISE (Revolutionary Innovation for Sustainable Engines) builds on four decades of investment in making engines cleaner, quieter, and more efficient. New propulsion technologies that deliver at least a 20% improvement in fuel efficiency are the ultimate target. Some 1,000 engineers are working on this ambitious goal and extensive testing is underway.

An open fan architecture, advanced materials, hybrid-electric, and 100% sustainable aviation fuel and hydrogen compatibility are all being studied.

The open fan architecture is the culmination of the growth in engine fan diameter in commercial jet engines over the past five decades. CFM RISE will demonstrate an open fan engine that will fly at the same speed as current single-aisle aircraft (up to Mach 0.8) with a noise signature that will meet anticipated future regulations while also reducing fuel burn.
22 facilities and the CBSA network is ramping up."

Moreover, engineers are developing repairs in advance. So far, some 700 repairs have been identified. Engines with the highest number of cycles have been studied extensively, along with further scrutiny of the design and architecture to predict where faults may occur.

Artificial intelligence (AI) also trawls through the abundant data to refine the process and Bourquin says the results are impressive; time on the ground has been drastically reduced.

Everything learned is fed back into the design and manufacture of new LEAP engines. CFM’s High-Pressure Turbine (HPT) shroud—a metal casing around the turbine blades that acts as an inlet—came from field experience, for example. CFM has also introduced a reverse bleed system to address a carbon buildup problem with the fuel nozzles.

“What happens in the field goes to the laboratory and becomes a focal point for upgraded hardware,” says Bourquin.

“Mid- to long-term, CFM policy is to introduce new technology. But there is a short-term loop where we correct any inefficiencies in the serving fleet. Everything is organized around this short-term loop. It is the core of CFM and the customer experience.”

It’s important to note that eight years after its entry into service (EIS), LEAP has not had any major component redesign, thanks largely to the extensive pre-release testing and the lessons learned from the CFM56.

“Real learning usually starts after the EIS because there are so many different environments and operational parameters,” concludes Kelly. “But the engineering work on the LEAP engine is peerless.

“That means we have been able to focus our resources on more substantial developments,” he adds. “Our investments can go into the RISE program. We keep looking down the line to try to understand where engine technology needs to be in the future.”
Thank you,

to our 600+ operators for the trust you place in CFM — in our people and in our products — every single day. We have an amazing history together; a lot has happened in the past 50 years. Our promise to you for the next 50 is that CFM will always deliver the level of support and innovation that has earned that trust.

Gael Méheust
CEO — CFM International
The IATA Financial Settlement Systems (IFSS) continue to perform an essential service for global airlines, facilitating the movement of funds across the air travel value chain while maintaining extremely high levels of efficiency and security. The IFSS are continually enhanced. Much was learned from reversing the flow of money to pay refunds during the pandemic, for example, and this has led to improved resilience. Areas currently under the microscope include changing customer behavior, new business models, and accommodating the multitude of new entrants.

“We want to know where we need to move to in the next three-to-five years,” says Muhammad Albakri, IATA’s Senior Vice President for Financial Settlement and Distribution Services. “Where is the value in the IFSS and how should the scope be improved? It must continue to be aligned with airline needs.”

**BSP for airline sales collection**

One obvious answer is accepting new forms of digital payment. The Billing and Settlement Plan (BSP), one of the IFSS services, is based on a “collect on behalf” model from the travel agencies and also processes debit and credit cards. But airlines—responding to customer

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**Airlines to take back control of payment**

There are still vast amounts of payment methods around the world, so how can airlines deal with them all?
At IATA, efforts are underway through the work of related standard management groups assessing the development of standards to facilitate the adoption of payment instruments that are relevant to airlines and their customers,” he adds. “We are also making solutions available to facilitate payment orchestration and instant bank transfers.”

Digital currencies
Albakri highlights a number of trends in the payment sphere. One of the most significant is digital currencies. This refers to the digitalization of public money or cash from the central bank as opposed to cryptocurrency digital assets. Europe is getting closer to implementing the digital euro, China has already piloted the digital yuan (e-CNY), and the United Arab Emirates will have the digital Dirham by end 2025. In fact, more than 130 countries around the world, representing 98% of global GDP, are reported to be studying the possibilities.

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and maximize future sales conversions. Albakri suggests that this puts airlines back in control and allows them to build from a stable base.

“Distribution doesn’t happen without payment,” he stresses. “Modern Airline Retailing is transforming the distribution landscape and we must now do the same for payments. For many airlines, the cost of accepting payment is now exceeding the cost of distribution. Airlines need to make sure that standards and processes are put in place for digital payments to benefit the consumer and they do not simply allow third parties to exploit a gap in the market for commercial gain.

“The payment landscape is larger and even more complicated than distribution”, he adds. Airlines have taken back control of distribution, and they now need to take back control of payment.

Modern airline retailing
Perhaps most importantly, payment is at the heart of Modern Airline Retailing. Payment encapsulates the end-to-end journey and is a central pillar of the offer and order management process. If airlines aim to be truly customer centric, then they must have seamless, secure, and frictionless payment at the core of their product.

“A superior customer experience starts by making sure that customers can buy and pay without friction, using the payment method of their choice,” says Albakri. “Offering the service that customers want and making available their preferred payment method creates a win-win proposition for airlines and their customers.”

IATA has upgraded its Airline Retailing Maturity (ARM) index with a Payment index. This has been designed for all airlines and assists them in measuring, planning, and assessing their payment and settlement foundations. The aim is to drive value creation and maximize future sales conversions. Albakri suggests that this puts airlines back in control and allows them to build from a stable base.

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Muhammad Albakri, IATA’s SVP for Financial Settlement and Distribution Services

2.2%

According to a 2022 Edgar Dunn & Co study, airline acceptance costs for payments amount to approximately $20.3bn per year—or about 2.2% of ticket sales
How will you cope with the increase in traffic, not only passengers but also aircraft movements?

Dubai International (DXB) has a smaller footprint than Heathrow and is built up to all four boundaries. More importantly, our two runways are not ideally spaced for independent operations. And that is the real limitation.

We know the A380 has a finite shelf life and 85% of the aircraft on order are narrowbodies. That tells you that facilitating aircraft movements is going to be vital.

We are witnessing a technical migration. Technology means seat mile costs are coming down for narrowbodies. These aircraft also have an excellent range apart from the extremes. And of course, they represent a lower commercial risk and provide more commercial flexibility. We realize that the smaller aircraft is the future.

We will cope by continued investment in technology and the development of Al Maktoum International Airport (DWC). We have announced Phase 2 of that project. The ultimate build out will see five runways, four of which will be capable of independent operations. It will give four to five times the capacity we have today and be planned for smaller aircraft with higher frequencies. Al Maktoum International Airport will also be as sustainable as we can possibly make it.

Is it crucial to be an inter-modal hub in future?

The more transport modes than you can interface with, the more effective you will become.

I am tremendously excited by advanced air mobility (AAM). Pilotless air taxis will be a rapid and sustainable way to get to an airport. And that will transform the role of regional airports too.

That needs to happen because the current model of hubs will become difficult from sustainability and economic perspectives. The interminable “will they, won’t they” about the third runway at London Heathrow shows that. Indeed, how many established hubs will be getting new runways? The chances are slim. But we do have lots of secondary airports with runway capacity. Add to that smaller aircraft, AAM, and intermodality and you begin to see a major market change.

Secondary airports will start to offer much bigger networks and their catchment areas will increase. There are actually 16 airports within range of Central London, for example. And it will all be economically viable at much lower passenger loads. It will be a brave new world that keeps air connectivity thriving but is much better for the planet and the customer. With Al Maktoum International Airport, we have the opportunity to build an airport around these new paradigms.

“When you scale up an airport, you extend capacity but also the walking distances. There should be a maximum size for airports and more intelligent surface access” Paul Griffiths, CEO of Dubai Airports
Is technology the key to growth?

This is a people business and though technology will play a role, it will be to support the human. Airports have tried a lot of self-service arrangements but really that is just putting a legacy process in front of customer. We shouldn’t be using real estate to go through everything the customer has already done online.

And consider the bag drop. Why can’t every suitcase have a unique ID molded into the luggage? It is routine in the car industry to give every car a unique ID. Just drop your bag off and the unique ID automatically associates it with the passenger.

As for border control, all the self-service kiosks do is retrieve information from a database and verify it. It’s not rocket science and yet how often do we see slow machines or machines out of action?

We have a “No Red Lights” program at DXB, meaning passengers won’t have to stop unless they want to. Why put barriers in the way?

Look at what Amazon has done to retailing or Uber to taxis. They didn’t take incremental steps. They deconstructed and reconstructed. We must be progressive and look for giant leaps, not small steps.

This will change the way architects see airports too. When you scale up an airport, you extend capacity but also the walking distances. Passengers can’t relax when a gate is 20 minutes away. There should be a maximum size for airports and more intelligent surface access. It just takes a bit of imagination.

How do you view the industry’s sustainability challenge?

At DXB, we are working to ensure no surface transport uses hydrocarbon fuel. We are reducing waste to landfill and there will be a 10-fold increase in solar energy.

But the sustainability challenge for the industry is significant. Emissions in the air are hard to abate and we are not keeping pace with growth let alone making inroads into existing emissions.

In Singapore, airlines have been mandated to charge a fee to cover the cost of producing sustainable aviation fuels (SAF). I applaud this idea because the product we provide must cover the ultimate cost to the planet. I would rather pay more and know my children have a secure future.

Ultimately, we need a new power source. There must be that shift, the same as when we went from a horse and carriage to the model-T. The answer was never to keep on adding horses.

For more information:
Visit www.dubaiairports.ae/corporate/
SAFELY IMPROVED SOLUTIONS WHILE OPTIMIZING OPERATIONAL EFFICIENCY THROUGH WEIGHT AND BALANCE

Growth has been the biggest driver for Qatar Aviation Services, forcing the ground handling arm of the Qatar Airways Group to innovate and recruit a verse, talented workforce.

“Our biggest success, beside all the awards, certifications, and having 45 customer airlines, is the level of human capital we have built,” says Murat Nursel, Senior Vice President, QAS. “Travelers see nice big airports, nice aircraft, but for a great travel experience, investing in human capital in ground handling is equally vital.”

Although some view cultural diversity as a challenge, QAS sees it as an opportunity to get new ideas and perspectives. The QAS team comprises a huge breadth of nationalities and backgrounds. Murat describes it as the company’s “biggest asset in terms of added value” for the customer.

Murat joined QAS 10 years ago and has witnessed significant global transformations driven by technological advancements and evolving customer airlines and passenger expectations.

“It is getting more complex now,” he says.

“Everybody is more knowledgeable and customer expectations are rising. But that is a good trend. It pushes every player. And it will showcase who is doing the work properly and who is willing to improve customer experience.”

QAS’ vision is to be the only choice for those seeking ground service excellence while continuously exceeding customer expectations. But, says Murat, that doesn’t mean growth for growth’s sake.

“We look to expand where it makes sense to do so,” he says. “The first priority is always to be strong in your hub before you look at other opportunities. It is difficult to control quality if you expand too fast, so we’re not looking to have a massive international portfolio. We think about what we can contribute, the partnerships, and many other criteria before we open a new station.”

Over the next five years, QAS is committed to numerous ongoing projects within and beyond Doha, all focusing on its key strategic pillars, including the safe and secure operational delivery, customer experience, employee engagement, and financial performance and investment.

“And most of all, we will continue to focus on integrity toward our customers,” concludes Murat. “This is something of which I am extremely proud. We are always honest and always take every request seriously. We want our customers to see the difference.”

Mehmet Murat Nursel
Senior Vice President - QAS

<table>
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<th>Key Performance Indicators</th>
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<tbody>
<tr>
<td>QAS manages more than 251,000 Aircraft movements</td>
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<tr>
<td>QAS serves +45M Passengers annually</td>
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<tr>
<td>+877,000 Persons with reduced mobility</td>
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<tr>
<td>QAS handles over 59M Bags per year with an impressively low mishandling rate</td>
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“SAFELY IMPROVED SOLUTIONS WHILE OPTIMIZING OPERATIONAL EFFICIENCY THROUGH WEIGHT AND BALANCE”

Centralised Load Control (CLC) is an integral service delivered by Qatar Aviation Services (QAS) for Qatar Airways and other major airlines. QAS has two geographically independent, state of the art facilities in Doha, New Delhi and is preparing to inaugurate a new location in the near future, which allows the ground handler to continue reinforcing non-disruptive service delivery round the clock.

Their dedicated and highly experienced team, with passion to deliver excellence, adheres to strict safety principles and quality policies, which are confirmed by an ISAGO certification.

QAS’ robust training program is tailored to a CLC specific environment, so that they have the capability and readiness to address any issues that arise, efficiently and in a timely manner.

Through the company’s holistic and systematic approach, QAS handles all types of operations, both scheduled and non-scheduled, and deliver innovative solutions regardless of the scale of operations.

QAS has the capacity to handle all aircraft types narrow and wide -body (Passenger and Freighter).

The award-winning ground handler is keen to deliver customized and innovative solutions that aim to maintain the highest levels of safety and improve the efficiency of their customers’ internal processes.

www.qataraviation.com  Qatar Aviation Services
qataraviationservices  qascommercial@qataraviation.com
IATA’s One ID is central to the solution of improving facilitation in protecting boarders and processing passengers.

Making the year of facilitation matter
Countries have strict immigration, customs, and health requirements when it comes to the cross-border movements of passengers. ICAO’s Year of Facilitation (FAL2024)—a celebration of the 75th anniversary of Annex 9 of the Chicago Convention—aims to highlight the significance of these processes across all aspects of air transport.

“The transformative potential of facilitation is huge,” says Karine Boulet Gaudreault, IATA’s Senior Manager, Passenger Facilitation. “This year is an opportunity to get all stakeholders involved to drive the operational efficiencies that can be achieved through true modernization and not simply digitizing legacy, manual processes.”

Every day, airlines process hundreds of thousands of documents, from passports to health credentials. Airlines verify these are valid and that they belong to the passengers, and that their passengers comply with the entry rules of the country to which they are travelling. Any mistake that means a passenger is denied entry when arriving at the destination is extremely costly to the airline.

Although airline staff are well versed in this process and have IATA’s Timatic products to assist, it is a complex area with new rules coming into force on a regular basis.

Moreover, many requirements are unique to a particular jurisdiction, such as specifying a length of validity for a passport, a requirement for blank passport pages, the need for a return ticket, or proof of accommodation.
Secure borders

For Boulet and Cole, the harmonization problem can be solved through a combination of technology and standards. But, Cole stresses, “the point is, if that happens, there is no reason for airlines to be involved in the process.”

Indeed, Cole is adamant that governments need to take back the security of their borders. “We respect governments’ need to protect their borders, but they shouldn’t place an undue burden on carriers, especially when the technology exists for a better solution.”

Airlines have been playing their part in border control since the beginning of aviation. Most carriers were state controlled and, as such, considered to be another arm of government. Having them check documentation and verifying passenger admissibility was therefore not the giant leap it is today.

“The world has changed and the processes behind getting passengers ready to fly must change as well,” Boulet emphasizes. “We must reimagine facilitation in this area. Airlines are not border security companies.”

One ID

Shifting the paradigm is not just possible, it would be the most efficient and effective way forward. Data holds the key and IATA’s One ID is central to the solution.

"Harmonization of these requirements is crucial for improving the customer experience," says Boulet. “IATA constantly lobbies governments to ensure they fulfil their international obligations and the international framework provided by ICAO is followed.”

Nevertheless, much work remains to be done on standardization. “Think of electronic visas, which work well for passengers that can apply online,” says Louise Cole, IATA’s Head, Customer Experience and Facilitation. “But the verification by airlines is extremely challenging in the absence of an interactive Advance Passenger System due to lack of standardization of the proof. Moreover, on a multi-leg journey you might not have the proof required because the data isn’t shared along the line.

“Or remember during the pandemic when passengers were asked to present a stamped, signed document that would have been in a foreign language on international journeys? It could have been anything. And this is the airline problem. How can you be absolutely certain a passenger is ready to fly amid such complexity?"
With One ID, biometric information is shared in advance—including with governments—to obtain all necessary authorizations. It ensures a passenger is ready to fly before arriving at the airport. The travel experience is further enhanced through digital identity technology, allowing passengers to move through airport touchpoints swiftly without showing physical documents.

This also addresses other challenges faced by the aviation sector, most notably airport congestion and the shortage of skilled staff.

But Harry Grewal, IATA’s Director, Airports, Infrastructure, and Customer Experience, notes that it is sharing the data with governments that is one of the main benefits as it will reduce the number of passengers flying without the right documentation. The biometric ID and verification process with governments makes the ready to fly designation more reliable.

“One ID means facilitation is sorted out up front, streamlining the whole process,” explains Grewal. “That alone is a profound change, but this is not a one-dimensional initiative and with data in digitized form there is no real need for airlines to act as an intermediary. Governments have the means to collect the data directly through pre-travel verification systems.

“The owner of the data—the passenger—simply hands it over to the data requester—the government,” continues Grewal. “There is no need for an airline to have private details and then hand them over in a batch, which is a cyber risk. Besides, the airlines have no need for many of the existing processes. The passport isn’t necessary for airline operations, for example.”

### Dealing with the long tail

IATA’s Control Authorities Workgroup has been laboring in this sphere for 37 years trying to make improvements, but the real decisions can only be made by governments. Encouragingly, a number are reported to be seriously studying a sea change in the set-up.

“It is essential to make progress as quickly as possible, but we must also be realistic,” says Boulet. “Some governments will be bold and some fast followers and then there will be a long tail. And, of course, the full benefits of One ID and governments taking back control of their borders will only be realised once everybody is on board.”

The passport chip highlights the problem. The technical specifications to put chips in passports were adopted early in the 2000s. But close to two decades later there are still a multitude of countries issuing passports without chips or are issuing electronic passports that do not respect the technical specifications, thus impeding global interoperability.

“Governments must understand that digital borders are possible,” Boulet adds. “There is no need for manual processes at the physical border.”

### One ID

- **Data holds the key** and IATA’s One ID is central to the solution
- The technical specifications to put chips in passports were adopted early in the 2000s
- Biometric information is shared in advance to obtain all necessary authorizations
For Richard Hough, President and CEO, Engine Lease Finance Corporation (elfc), the bounce back is positive news as he accepts the company is “a market taker, not a market maker.”

Even so, in 2023, elfc invested some $1.3 billion in its business, beating the previous best of $800 million by a considerable margin. Almost all of this investment was in the latest technology equipment. Asset utilization is up, and engine inventory is back down to levels not seen since the middle of 2019. As a result, yields are strong.

“This is a cyclical industry, but we could be at the start of a sustained growth period,” Hough notes. “There are emerging regions or countries around the world that have excellent prospects.”

**Aftermarket issues**

As ever, there are challenges to overcome. One is the MRO aftermarket, which continues to be dominated by the OEMs. There are supply chain issues across the sector, including slot availability, new material supply, repair capacity, engineering support, and repair development capability.

elfc has a spare parts subsidiary—inav—which seeks to support the aftermarket with used serviceable material (USM) but has challenges in getting slots to teardown old engines and restore repairable parts to serviceable condition.

Even so, the use of alternative parts and repairs is gaining momentum, though it is a complicated issue with plenty of vested interests.

“OEMs are arguing that alternatives could have safety and certification problems, but really this is a commercial argument,” says Hough. “Everybody wants their share of a big, profitable market and to be fair, the OEMs invest billions in developing engines and are entitled to a fair return for their investment and risk. The issue is a lack of competition which deprives the sector of innovation.”

Hough stresses that the use of alternatives is different from unauthorized parts, which should never be allowed to enter the supply chain. But the efforts to stop these parts, for example through the recently formed Aviation Supply Chain Integrity Coalition, could have unintended consequences because genuine alternative spares could be affected by heavy-handed legislation, what Hough describes as “throwing the baby out with the bathwater.”

Such an outcome would not be good for any stakeholder, but airlines would be the ones most affected while OEMs would be among those least affected.

Another problem with limiting the use of alternative parts and repairs is the impact on sustainability: the fewer options, the fewer the number of repairs resulting in a limitation on USM. Airlines start to rely on new parts, which effectively increases emissions along the supply chain. A better way forward, says Hough, would be more spares, more repairs, and support for the circular economy.

**Picking up the pace**

Indeed, Hough rates sustainability as another huge challenge going forward. “We are going in the right direction but not at the right pace,” he says.

**In a nutshell**

In business since 1990, elfc plans to leverage its extensive skills and experience to serve growing aviation demand. The company is independent and supports all OEM products, working closely with each one to refine its services. The aim is to be a supportive partner that answers customer needs, offers competitive rates and services, and honors all commitments.

Most elfc contracts are 5, 7, or 10-year leases although there may be some shorter deals mixed in, especially as an engine nears its end of life.

As a rule, airlines do the maintenance work on the engine as they have better economies of scale and need the operational agility of keeping maintenance in-house.
Sustainable aviation fuels (SAF) are the industry’s big hope for achieving net zero by 2050 but supply is not increasing at a rate to hit the milestones, and fuel producers need more incentives and support.

About 95% of elfc’s investment is going on the latest engines that minimize fuel burn and emissions and are compatible with SAF. But Hough says that he is not expecting to see electric or hydrogen-powered aircraft replace the current models any time soon.

“A electric aircraft will only go short distances with small capacities and hydrogen will require a completely new aircraft and supporting infrastructure,” he says. “In the meantime, we must go with the best engines and SAF. But it is important for us to get the right balance for our customers’ needs. There is still a case for purchasing older engines, especially as they mature and the need for spares increases. Also, end-of-life recycling is an important contributor to reducing maintenance costs for mature assets.”

Another stumbling block in the engine leasing market is overly long and complicated legislative processes when airlines fail. This is currently a particular problem in India with an ongoing court process already measured in years.

“There are markets, like India, where we want to invest and deploy our assets, but recent experiences have shown it to be a significantly riskier jurisdiction for leasing,” says Hough. “If we put an asset somewhere, we must know we can get that asset back in a reasonably short timeframe and not wait months or years, while the asset deteriorates in condition and value due to insufficient maintenance and preservation. Smarter regulation and the application of bankruptcy law would give businesses more confidence to support what is potentially a huge market.”

“This is a cyclical industry, but we could be at the start of a sustained growth period. There are emerging regions or countries around the world that have excellent prospects”

Richard Hough, President and CEO, elfc

For more information: Visit the website at https://elfc.com/contact/
Tackling operational cost in Africa

Allan Kilavuka, CEO of Kenya Airways, says that African airlines must get the support they need to bring social and economic benefits to the region.

Words: Graham Newton

Governments in Africa don’t fully understand the true value of aviation, says CEO Allan Kilavuka, but he is optimistic this will change in the future—with the help of Kenya Airways.

Can you tell us about your strategy and the fleet and network expansion?
We are excited by the opportunities in Africa. Kenya Airways is an African carrier, and our mission is to connect Africa to the world and the world to Africa. We want to leverage Nairobi as a hub, especially for intra-continent traffic.

The airline is growing, and we are predicting that will continue. That means we need to increase our fleet by about 30% over the next five years. It won’t be easy, however, as there is not much availability, and we also want to simplify our fleet.

The aim is to reduce fleet types to just two, which will enable a substantial reduction in cost and far greater efficiency in operations. Depending on what we achieve in terms of fleet, we will also be looking at new markets, again with that emphasis on connecting Africa to the world and promoting trade and tourism within the continent.

Why are you expanding cargo services and what improvements can we make in this sector?
Cargo is important not only for Kenya Airways but also for Africa. We see ourselves as enabler for trade across the continent. At the moment, cargo is about 10% of revenues but the goal is to increase this to 16% in five years.

Most of our cargo is carried in the belly of passenger aircraft but we have two dedicated freighters and will add two more in 2024. In the next couple of years, we also hope to add a widebody freighter.

Of course, the air cargo sector is in great need of simplification, especially in Africa. But I look at this as another huge opportunity for collaboration and digitalization. Everybody in the value chain can make an impact and help reduce cost and increase efficiency.

At the moment, there is a lot of paperwork and little commonality. We can start harmonizing at a regional level—for example, in East Africa—but there is a long way to go.
“The airline is growing... we need to increase our fleet by about 30% over the next five years”
What can be done to reduce operational costs in Africa?
This is the issue for African carriers. There are three aspects to this:

- **Infrastructure deficits**—airports and air traffic management systems tend to be old, making them more expensive to operate. Airlines end up picking up those costs.
- **Taxes**—in Africa, aviation is seen as elitist. We know this is not true. Africa is a big place and flying is the only viable way to travel for most journeys because road and rail connections are poor, if they exist at all. Nevertheless, aviation is taxed heavily, it faces numerous challenges, and the regulatory compliance requirements among African states are not harmonised. Kenya now has a free entry policy, but many countries do not and that curtails their trade and tourism.
- **A lack of automation and technology**—many processes still rely heavily on manual labor. It is expensive, time consuming and open to error. There are many opportunities for collaboration across the value chain.

Are you confident that liberalization in Africa—through the Single African Air Transport Market—will happen?
Yes, I am confident it will happen. But these things take time to mature, especially in Africa, and we must accept it will be a gradual process. After all, there are 54 countries in Africa. That’s 54 different ideas about how it needs to be done and the timeframe involved. Africa is a very diverse continent, and each country has unique circumstances.

So, the best way would be to take a regional economic community (REC) approach. In East Africa, there are five countries. Let’s start there and then we can roll out the process and lessons learned to other countries.

Do governments in Africa understand the value of aviation?
Not well enough, unfortunately. If they did, there would be more support for the industry.

Aviation doesn’t get enough understanding from governments and that means it doesn’t get enough investment. It is not seen as a solution to the continent’s challenges other than as a tax opportunity.

But if there is an emergency or healthcare situation, aviation is vital. The industry can also provide considerable social and economic benefits but to fully enable those benefits, we need governments to take a strategic view of the industry and to develop good aviation policies. So far, that hasn’t really happened.

Do you feel that safety in Africa is improving?
There has been a significant improvement but of course more needs to be done.

Kenya Airways has been certified under IATA’s Operational Safety Audit (IOSA) for a long time and we want to share our experience and help other carriers. I do see smaller airlines approaching us for help and that is great.

One area that we have to strengthen is civil aviation authorities. We need to be proactive and improve their quality. That will take support from governments and the industry.

How difficult is it to get aircraft spares and how is this affecting your operations?
It has always been difficult in Africa. We once had an aircraft grounded for a year because of a lack of parts. That leaves a lot of money on the table. The problem is that OEMs [original equipment manufacturers] are focusing on new aircraft as opposed to repairing older models. But the situation is improving, and it shouldn’t affect operations too much.

How important is sustainability? And can Kenya become a producer of sustainable aviation fuels?
Often, when people talk about sustainability, they are only talking about sustainable aviation fuels (SAF). SAF are important but they are expensive. And sustainability is a broad term and a concept that must be integrated into all aspects of the airline business.
So, at Kenya Airways, we view sustainability holistically. That means we focus on how we can reduce waste, make our flights more efficient, or improve our ground operations. Ground vehicles have several alternative fuels available, for example. And we are also investing in solar energy and expect to have that up and running by the end of 2025.

And let’s not forget sustainability is also about people. We are very active in trying to ensure we have more women and other minorities in key positions. Diversity and inclusion are a big part of what will make the industry sustainable in the future.

Is it difficult for you to attract and retain staff?
No, Kenya Airways continues to attract and retain top talent. We believe that our employees are our key assets and have put in place programs aimed at ensuring they experience a fulfilling career. These include personal growth and career development; a competitive compensation and benefits; staff welfare and employee wellbeing; and a company culture that embraces diversity, inclusion and equity (DE&I).

In fact, we are on a culture transformation journey, known as Reignite. Part of the goal is to be an employer of choice.

Overall, through our Employee Assistance Programs (EAP) we ensure we take good care of our staff while promoting a culture of engagement, empowerment, and loyalty among Kenya Airways’ workforce.

If you could make one change in African aviation, what would it be and why?
Kenya Airways advocates for greater collaboration among African countries to harmonize regulations, improve infrastructure, and enhance airspace management.

Simplifying bureaucratic processes and promoting open skies agreements would facilitate seamless connectivity, spur economic growth, and elevate African aviation to new heights.
**THE POWERFUL INTERSECTION OF LOYALTY AND ANCILLARY REVENUE**

How to make the most of an airline’s customer loyalty to increase its ancillary revenue.

On average, ancillary revenue is growing twice as fast as an airline’s core revenue. At the same time, an airline’s loyalty program members are known to spend more, fly more, and stay active longer.

It is little wonder, therefore, that Ken Harris (pictured, opposite), Plusgrade’s founder and CEO, describes the conjunction of these two sectors as “the most exciting and fun part of the industry.”

He continues: “We are working in the bullseye of the Venn diagram where loyalty and ancillary revenue meet. Our aim is to take a holistic view and use loyalty to increase ancillary revenue and ancillary revenue to drive loyalty. We want to maximize value for our partners.”

**Creating an experience**

The goal, always, is to ensure that in the end, the customer benefits the most.

Most ancillary revenue is spent on improving the travel experience, such as faster processing at the airport, lounge use, or a better inflight service. Accordingly, Harris says that airlines must view ancillary revenue in the light of the end-to-end journey and gaining loyalty rather than as a purely money-spinning exercise. “Ancillary revenue must have a positive impact for customers,” he says.

Plusgrade products such as Seat Blocker and SpeedPass—a bundled product that aims to help passengers move through the airport with ease—are designed to respond to passenger needs. Other products include:

- **Premium Upgrade**
- **Loyalty Currency Retailing**
- **Hospitality solutions StayExtend and StayPlus**

“Airlines need to offer their best ancillary opportunities to their best customers or make a customer loyal through great ancillary services,” says Harris.

**Understanding loyalty**

Airlines are beginning to understand the value at their fingertips. But this is a new frontier, and the opportunities are still being defined. Data is the key, and, in airlines, legacy systems have kept this siloed.

But the move to modern airline retailing based on IATA’s New Distribution Capability (NDC) and One Order standards is resolving the problem specifically related to ticketing. Ancillaries are more advanced, and airlines are already starting to obtain...
Plusgrade’s aim is to help airlines on this journey and create a more durable customer base. The company’s 700-plus staff can advise on potential products, implement the requisite modules, and achieve significant revenue increase, all within weeks. Plusgrade has decades of experience across industries and continues to deliver upsides to over 200 clients.

“Airlines don’t have to be sophisticated in their systems—that’s our job,” says Harris. “But they should be sophisticated in their thinking and in their objectives. It doesn’t matter where they are based, the routes they operate, or the aircraft they fly. What we need to know is where they want to focus their energy.”

Harris concludes that driving loyalty and maximizing ancillary revenue based on creating a better travel experience will be the key differentiator going forward. The commoditization of air travel makes unique selling points invaluable.

“Everybody should feel like they are getting a personalized journey,” he says. “But not like a vending machine where you have to pick and choose. Rather, you should have the sense that the airlines know what you will pick and choose—that the airline knows you as an individual.”

For more information: Visit https://www.plusgrade.com/

“Our aim is to take a holistic view and use loyalty to increase ancillary revenue and ancillary revenue to drive loyalty”

Ken Harris, Founder and CEO of Plusgrade
Modern Airline Retailing is an active and important initiative for airlines around the world. But though control of the Offer and Order environment is an essential component in a fiercely competitive industry, IATA is aware that not all airlines have the same set of requirements and distribution strategies.

“This is why the Agency Program is still so important,” says Muhammad Albakri, IATA’s SVP for Financial Settlement and Distribution Services. “IATA accredited agents are trusted distribution partners, and our Agency Program allows airlines and agents to come together to solve challenges and ensure this vital channel remains strong.”

Moreover, the Agency Program fits perfectly with the overall objective of giving customers greater choice. The travel agent is still a vital part of the offer to the customer and has become a hub for consolidating the travel experience. Travel agents are also playing an important role in Modern Airline Retailing as IATA continues to see an increase in NDC transactions in the BSP.

“Really, they are travel consultancies,” says
We have also been to more events and meetings where travel agents want to know more about the benefits of becoming IATA accredited”

Muhammad Albakri, IATA’s SVP for Financial Settlement and Distribution Services

In 2023, the travel and tourism sector contributed 9.1% to global GDP and created 27 million new jobs, according to the World Travel and Tourism Council. Airlines are critical to making that happen. And so are travel agents.

In fact, travel agents are still the industry’s strongest distribution channel. The aim, therefore, is to ensure these agents are robust, reliable partners and the process of engagement—whether it is payment or fulfilling passenger requests—is as seamless and cost-effective as possible.

Keeping the program relevant

The most important step was the development of New Generation IATA Settlement Systems (NewGen ISS) approximately five years ago. This introduced different levels of accreditation:

- **Go Global** is for large multinational agents and simplifies BSP participation by having a single agreement and a consolidated financial security and Remittance Holding Capacity.
- **Go Standard** agents are allowed to sell in cash and other forms of payment.
- **Go Lite** agents benefit from not having to furnish financial securities to participate in BSP and are allowed to sell with IATA EasyPay and Credit Cards.

Airlines in turn gained from enhanced risk management and other tools that made the distribution of tickets through travel agents even safer.

“It is not one-size-fits-all anymore,” says Albakri. “Agents can join at an appropriate level of accreditation for their business but still gain from the trust and reach that being accredited brings.”

Supporting the recovery of the industry

After COVID, IATA focused on revamping the accreditation process and streamlining the requirements. The Go Standard agents do not have to go through a financial assessment for the first two years of operation, for example. All told, the changes have resulted in a 50% reduction in accreditation times and a customer satisfaction of 90%.

“We did all this without compromising the risk management criteria,” says Albakri. “In fact, we have enhanced it by adding different compliance reviews, such as PCI DSS (Payment Card Industry Data Security Standard), as a requirement for agencies selling in credit cards, and more robust real-time monitoring of agency sales. But we can improve further both on continuing to strengthen the risk environment and on improving IATA’s service to travel agents by reducing our processing times.”

The improvements in the accreditation process, with the resilience shown by the Agency Program during the pandemic, has led to strong demand and growth in accreditation numbers. “We have also been more present in events and different meetings where travel agents approached us to know more about the benefits of the program and the requirements to become IATA accredited,” says Albakri.

As a result, the number of travel agent codes in the BSP has increased from 54,341 in 2022 to 58,923 codes in April 2024.

For Albakri, this proves that as long as there continues to be a commercial relationship between airlines and travel agents, the program will continue to be extremely valuable.

“Agents will be even more relevant in the future than they were in the past,” he believes. “The Agency program is at the heart of industry resilience because it is a strong, trusted system for distributing and selling tickets and collecting monies. There is also a very low cost of transaction and IATA will continue to improve the service we provide.”

(quote image)

In 2023, the travel and tourism sector contributed 9.1% to global GDP and created **27 million new jobs**, according to the World Travel and Tourism Council.
IMPROVING ACCESS TO AIR TRANSPORT IN LATIN AMERICA

Frederico Pedreira, avianca’s President and CEO, explains the airline’s emergence from Chapter 11 and the importance of air connectivity.

Following avianca’s emergence from Chapter 11 two years ago, the airline refocused its business model to expand its reach, targeting a broader consumer base.

“Air connectivity in the region is not a luxury but a fundamental necessity,” says Frederico Pedreira, avianca’s President and CEO. “We aim to provide an affordable, efficient, and reliable service across our network while upholding environmental sustainability and social responsibility. We do so with a flexible product that can answer the needs and expectations of a wide range of customers, from the executive who flies once a week to the family on their yearly vacation or the passenger flying for the first time.”

The efforts paid off. In 2023, the airline achieved a record 32.2 million passengers. It was awarded the world’s most punctual global airline by Cirium, with a scheduled completion of 99.15%, and its baggage mishandling rate dropped to 1.5/1,000 passengers, significantly below the worldwide average. Furthermore, it successfully reduced its carbon emissions 20% in absolute terms compared with 2019. All this was done while expanding the network to 70-plus destinations across 25 countries in America and Europe.

**Punctuality**

Punctuality is one of the core components of avianca’s value proposition: to ensure its passengers at their destinations arrive safely, on time, and with their luggage.

But, more than that, Pedreira says punctuality has also been vital as part of the process of turning avianca into a cost-efficient airline. “Our average aircraft utilization went from averaging 9 hours in 2019 to almost 12 hours in 2023, which would have been impossible without an on-time operation,” he reveals.

That said, several factors contributed to...
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achieving Cirium’s historical recognition: consideration of operational inputs from an early stage of the itinerary design; access to real-time data for effective decision making; the creation of a strong culture in operational performance; and, most of all, says Pedreira, having a world class team.

Close collaboration with all partners and key stakeholders, from governmental authorities, airport concessionaires and other third parties, was equally vital in avianca’s success.

**Leading cargo operator**

Another strategic element in avianca’s turnaround is cargo. The aim is to position Avianca Cargo as a leading operator in the region, driven by the execution of a four-pillar strategy:

- A network redesign and a fleet renewal plan to incorporate converted A330s.
- An improved customer value proposition with a sustained enhancement of service levels and a standardized product.
- Investment in warehouse renovation and digital enhancements to secure end-to-end seamless processes for all customers.
- Putting cost reduction as a top priority and continually looking for efficiencies and optimization policies.

“Today, the cargo industry has returned to pre-pandemic levels and is facing a challenging environment with an overall contraction of global air demand and growing capacity worldwide,” accepts Pedreira. “Yet our long-term strategy remains steadfast. We are proud to see how these efforts are paying off as we were awarded Best Cargo Airline in the Americas in 2023 by our customers.”

**Regional trends**

Overall, Pedreira believes Latin America is a region that offers ample opportunities as air connectivity is essential for economic and social development. A Bogotá-Barranquilla trip takes about one hour by air but more than 18 hours by bus, for example. With 0.6 trips per capita in 2023 compared with 2.6 in the United States, according to IATA, the region has an enormous growth potential for the coming years.

Important challenges remain, however. Infrastructure is an obvious shortfall, including airport terminals, navigation aids, and runways. There are many cities in the region lacking critical connectivity due to an absence of basic infrastructure.

The region’s airlines must also tackle one of the highest levels of taxes and fees in the world. In some cases, taxes and fees represent up to two-thirds of the ticket price. “We need to improve access to air transportation, which means we need cheaper tickets, which means lowering taxes and fees,” explains Pedreira.

Finally, Pedreira highlights sustainability, and particularly the availability of sustainable aviation fuels (SAF). In Latin America, there are specific challenges that must be addressed to ensure the practical and viable use of SAF.

“Firstly, the cost of SAF will be a decisive factor in Latin America,” Pedreira explains. “As we strive for air connectivity and more access to service in the region, it’s imperative to prevent costs from escalating. Secondly, regulatory frameworks pose a challenge. Although Latin American governments are making progress in formulating SAF regulations, we still lack clear and comprehensive frameworks across the region. And thirdly, there is the availability of SAF. Latin American countries need to become producers and exporters of SAF rather than relying on imports. Given our abundant feedstocks, there is immense potential, yet today not a single drop of SAF is produced in Latin America.”

Pedreira also emphasizes Latin America’s unique circumstances. He stresses the region’s energy transition must proceed cautiously to avoid jeopardizing access to services, considering the limited alternative transportation options and the economic constraints many in the population face.

“Sustainability for avianca also encompasses creating a positive social impact in the regions we serve,” he concludes. “For this reason, in 2023, we put our aircraft at the service of 18 social partners, for projects focused on providing access to health and food, defense of human rights, women’s empowerment, and-wildlife protection. More than 14,000 vulnerable people in Colombia, Ecuador, and El Salvador benefited.”

**For more information:**

Visit the website at [https://www.avianca.com/](https://www.avianca.com/)
IATA opposes Article 8 changes

Taxation up to now has been based on the location of an airline’s headquarters. A new UN tax proposal aims to change that.
Taxation

Taxation is a thorny topic for aviation. Airlines, rightly, are happy to pay their due, but overlapping regimes, spurious taxes that are little more than cash grabs, and an onerous cost of compliance are regular challenges.

The latest concern is the United Nations Tax Committee’s proposal to change Article 8 of the UN Model Tax Convention. As it stands, airlines pay income tax on a “residence” basis, meaning an airline head office bears full responsibility for airline operations and pays income tax to the country in which that head office is located.

The proposed change to Article 8 would see aviation included in a source state approach. The justification is that a country that provides an opportunity for income should have the right to tax that income.

“The location of an airline’s headquarters is not a tax-driven decision but based on legal and regulatory requirements,” notes Willie Walsh, IATA’s Director General. “This approach does not provide a concessionary or preferential regime. In fact, it is the single most accurate means of achieving the basic goal of avoiding multiple taxation risks and unnecessary tax compliance burdens for airlines.”

Governments worldwide have agreed with this approach through the International Civil Aviation Organization (ICAO), which calls on governments, “to the fullest possible extent, grant reciprocally exemption from taxation on the income of air transport enterprises of other contracting states derived in that contracting state from the operation of aircraft in international air transport.”

This is besides the already significant indirect taxes, such as fees paid for overflight rights, ticket taxes, and freight taxes, that airline companies pay in the countries where they operate, on top of landing/take-off fees and other airport charges for the use of infrastructure. The assumption that airline operations are inadequately taxed, under-taxed, or not taxed at all in source countries doesn’t hold water.

Moreover, aviation is subject to Pillar 2 of the Organisation for Economic Co-operation and Development’s (OECD) global tax policy, which ensures that companies with global revenues above €750 million ($802 million) pay a minimum effective tax rate on income.

Although this policy was created to avoid a so-called race to the bottom—where companies relocate to minimize tax payments—there is no practice of airlines relocating for tax purposes. In fact, most countries, including developing nations, are home to an airline that falls within their tax regime, and there is no concentration of airlines in specific countries due to favorable tax regimes.

Source state proposal
Walsh argues that, rather than provide countries with extra tax revenues, the source state proposal would “generate a mess of reporting complexity that would exhaust both airlines and tax authorities. And that would run completely counter to the approach of many governments to simplify regulatory regimes.”

Most airlines fly across borders with passenger numbers now in excess of four billion. Accurately understanding the tax implications at the individual country level would therefore be enormously complex.

An area of increasing concern is so-called green taxes

In economic terms, these taxes internalize aviation externalities, so may or may not reduce CO2 emissions. The patchwork of taxes also gives rise to double counting, meaning airlines can pay multiple times for the carbon they emit.

Many airlines are based in countries that are participating in the worldwide Carbon Offsetting Reduction Scheme for International Aviation (CORSIA), for example, and yet these same countries have regional, national, or local carbon tax schemes implemented or under consideration.

Furthermore, the money generated by green taxes often disappears into government coffers rather than being funnelled into sustainability initiatives.

Any tax should be able to demonstrate a credible, robust analysis to ensure a holistic approach that solves the perceived problem. How the tax funds will be used should also be explained.
The future of aviation safety and operations data

**FuelIS**
Reduce environmental impact and keep costs down

iata.org/fuelis

**SafetyIS**
Improve safety with the industry’s largest flight ops incident database

iata.org/safetyis
And this is without considering the multitude of aviation-specific nuances, such as joint ventures, codeshares, transfer and transit passengers, direct and indirect sales channels, and inflight sales in international airspace.

Moreover, there is the question of fixed costs, amortisation, leases, and maintenance costs across aircraft deployed on international routes.

“Any taxation based on a sourcing rule would generate double or multiple taxation,” says Walsh. “These complications would translate into massive increased compliance costs for airlines and for the tax authorities that would have to manage them.”

In other words, explains Walsh, airlines and tax authorities would need to recruit additional expertise, prices would go up, demand down, and air connectivity would begin to dwindle. It follows that trade, business, job creation, and social links would all suffer. Governments would also collect less tax from related sectors, such as tourism.

Hurting Least Developed Countries
Walsh stresses that the Least Developed Countries (LDC) would suffer the most. National airlines would be subject to additional taxation arrangements and endure a significant additional financial burden.

The complexity of tax
Although the industry is expected to make a profit of $25.7 billion in 2024, it equates to a net profit margin of 2.7% and just $5.45 per passenger. It seems, however, that governments only consider the first figure when it comes to taxation.

However, it is crucial to contextualize these figures. The industry has weathered significant losses during the COVID-19 pandemic, with net losses exceeding $182 billion over three years. Moreover, the net profit margin of 2.7% falls significantly short of the returns expected by investors in most other industries.

This underlines the unique financial challenges faced by the airline industry. Low profitability is not because of a lack of cost control. The industry managed to successfully halve unit costs in real terms over the 40 years to 2013. However, all those efficiency gains have been passed through to customers in lower prices.

With such a low profitability, the airline industry can be drastically affected by any material increase in costs such as double taxation and administrative compliance.

Any taxation based on a sourcing rule would generate double or multiple taxation. These complications would translate into massive increased compliance costs for airlines and for the tax authorities that would have to manage them.”

Willie Walsh, IATA’s Director General

“The proposal is very costly and inefficient both for airlines and particularly for LDC authorities,” he says. “It will almost certainly result in higher airfares for the citizens of the LDCs, with a reduction in international connectivity. It will needlessly introduce distortions and reduce LDC competitiveness, and adversely impact business, investment, and growth opportunities in LDCs.”

Studies have shown that a 1% increase in aviation frequency in African countries, particularly those with good international air connectivity, leads to about a 6% increase in trade volumes. Therefore, any taxation decision made without considering the impact of the aviation sector on a country’s trade and business volume could result in irrepairable damages.

IATA is calling on the UN Tax Committee to preserve the economic and social benefits delivered to countries by efficient global connectivity.

“Residence-based taxation is the most accurate and fair means of taxing airlines,” concludes Walsh. “That must not change. Quite simply, it makes sense that airlines are taxed on worldwide income under ordinary corporate income tax systems in their home jurisdictions.”
Downtown connections
From iGA Istanbul Airport, there are multiple options available via public transport to reach downtown Istanbul quickly and easily, including frequent buses and dedicated airport shuttles. The highway has been supplemented with a metro line and a second metro line will open later in 2024. Moreover, a high-speed rail connection is under development that will connect the airport with the national rail network.

“Accessibility is also a crucial aspect of our sustainability work,” continues Bilgen. “iGA Istanbul Airport is the most accessible airport in Europe and the first in the world to receive...
The ACI World Accessibility Accreditation. We place a strong emphasis on engaging directly with our guests to understand and meet their needs and expectations. More than 200 of our employees can use sign language, for example.”

This customer-centric approach has led to numerous innovations, such as the Loud Steps App, which is designed specifically for visually impaired travelers, and there are also individual rooms tailored to the needs of passengers with various conditions, including autism, Downs Syndrome, dementia, and more.

“We are especially proud to have opened a new Grab-and-Go Coffee café in the domestic concourse of the terminal, which is being run by nine employees with disabilities,” says Bilgen. “All profits from the café are being used for socially responsible projects. We hope to bring this set up to the international side of the concourse as well in the future.”

**Technology to the fore**

Despite these initiatives, it is the airport’s focus on growth that will really set it apart from the crowd.

iGA Istanbul Airport plans to implement triple parallel runway operations to eventually attain a capacity over 140 air traffic movements (ATM) per hour. Ultimately, six main runways will see the gateway achieve more than 220 ATM/hour. They will likely all be needed given that the airport has grown from 61 airlines in 2019 to 102 airlines by end 2023, despite a global pandemic. By the end this year, iGA Istanbul Airport expects to serve 110 airlines, a global high, welcoming more 563,000 flights and 85 million passengers in the process.

The giant, 1.4 million m² passenger terminal will keep pace, growing to 150 mppa, although Bilgen thinks this is a conservative estimate given the ability of new technologies to streamline processes. Indeed, if the CEO had one wish to transform the industry it would be the quick implementation of innovative technology throughout the aviation ecosystem. “This is an integrated industry, and we must work seamlessly with all our partners,” he says. “A delay at another airport or in air traffic management means a delay for us. We must share more data in real-time for the good of the passenger.

“We are ready,” Bilgen concludes. “Our airport operations center is one of the most advanced in the world, we have AI embedded in our congestion monitoring systems, and only regulation is holding back widespread use of biometrics. We must remember that airports are no longer merely infrastructure providers. As airports need to understand our passengers’ profiles, travel behavior, and needs and serve them accordingly.”

**For more information:**

Visit the website at [https://www.istairport.com/](https://www.istairport.com/)
Hong Kong International Airport has been the world’s busiest air cargo hub for many years, resuming its position at the top after a temporary, pandemic-induced hiatus in 2020. Its speedy return is largely down to the e-commerce boom, with a significant percentage of the world’s online purchases funneling through Hong Kong from the Greater Bay Area.

But Hong Kong was ready for the business—which exceeded 4 million tons in 2023—boasting some of the world’s leading cargo facilities.

Rather than resting on their laurels, however, the key players at the air cargo hub are thinking ahead. A UPS hub is expected to begin operation in 2028 handling around 1 million tons per annum, joining a DHL hub of similar size that opened in 2023. DHL has a partnership with Cathay Cargo through Cathay’s dedicated cargo subsidiary, Air Hong Kong, which operates overnight express services to 14 Asian destinations.

Meanwhile, some HKD70 million (US$8.9 million) has been invested in cool dollies—mobiles fridges that ensure temperature-controlled goods maintain integrity from aircraft to warehouse—which will complement certification in IATA’s Center of Excellence for Independent Validators (CEIV) Fresh program. Indeed, the airport and home carrier, Cathay Cargo, possess the full suite of CEIV.

The alignment of digitalization in the supply chain around ONE Record will be a game changer.”

Tom Owen, Director of Cathay Cargo
certifications, with Pharma, Live Animals, and Lithium Batteries making up the portfolio.

Arguably, the biggest difference will be made by a logistics facility in Dongguan in Mainland China, which is expected to reduce processing time by about a third and costs by half. Operations are scheduled to begin in 2025 but already pilot schemes are underway. In late 2023, for example, Cathay Cargo worked with IATA and the Airport Authority Hong Kong (AAHK) to offer IATA’s ONE Record data protocols for intermodal shipments accepted at Dongguan. It was the first time that ONE Record was used for a sea-to-air shipment, with cargo acceptance logged outside the origin airport’s cargo terminal.

Freight forwarder Yusen Logistics had shipments bound for Bangkok, Manila, and Tokyo pass through AAHK security at Dongguan. Yusen was able to follow the shipments’ progress by interfacing with EzyCargo thanks to work by Global Logistics System (GLS) HK Co Ltd.

For Tom Owen, Director of Cathay Cargo, this was just one more step in the carrier’s determination to be a digitalization trailblazer. “The alignment of digitalization in the supply chain around ONE Record will be a game changer,” he says. “It will unlock tremendous value and allow air cargo to be truly competitive. It will be especially important to serving the e-commerce industry, which is at least half of our business.”

**Digital capabilities**

Cathay Cargo’s digitalization efforts started many years ago. The carrier offers 100% e-air waybill (eAWB) out of Hong Kong and is at 95% worldwide. More than 50% of its shipments are booked through its Click and Ship online booking platform and the carrier has extensive IT integration with its customers through API technology.

“We want to work with companies and hubs throughout the supply chain that have a strong digital program,” says Owen. “That is why ONE
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MAKING A DIFFERENCE WITH EVERY FLIGHT

Aviation has a number of decarbonization levers available right now to help it reach net zero 2050 goals.

Yann Cabaret, CEO of SITA FOR AIRCRAFT, says airlines shouldn’t ignore any carbon reduction possibilities. “Even small changes now can give you big returns over the long term,” he says.

Weather forecasting
Cabaret believes there are three areas where airlines can make immediate improvements. The first is weather forecasting. This is an under-exploited factor but can yield enormous returns in efficiency. Weather forecasting is not only about avoiding storms or turbulence but also using wind patterns to advantage and optimizing operations.

“Climate change is making extreme weather events more common and it’s important we increase our awareness of weather patterns,” Cabaret notes. “Weather will also be important to new airspace entrants, such as drones, which could have a knock-on effect for overall airspace management.”

SITA offers airlines SITA eWAS, which gathers extensive real-time data and turns it into a user-friendly interface with actionable weather and turbulence information.

Inflight optimization
A second area of improvement is inflight optimization. SITA OptiFlight looks to minimize fuel burn across every phase of flight. Using advanced analytics, SITA OptiFlight creates tail-specific predictive performance models and determines inflight recommendations which will lead to carbon emission reductions today.

“We must start making sustainability decisions even for a single flight,” stresses Cabaret. “How do I taxi, climb, and cruise so that every flight is as low in emissions as possible?”

This links to the third area of immediate improvement, namely increasing inflight optimization opportunities thanks to an enhanced collaboration between pilots and air traffic controllers. “We can give every pilot a recommendation, for example on the climb phase,” says Cabaret. “But onboarding air traffic controllers, making them aware of the sustainable impact of a climb-out optimization, is key. This is a complex ecosystem, and every partner is involved in the end-to-end journey.”

SITA’s approach is to engage with the people on the frontline wherever possible, such as pilots, air traffic controllers, fuel managers, and compliance teams, to truly understand their challenges.

“We are bringing pilots and air traffic controllers into the same room and helping them to collaborate toward lower emission flights, considering both of their constraints,” explains Cabaret.

Regulatory compliance
Overriding these efforts to squeeze carbon reductions out of the existing framework is the need for regulatory compliance. From

“We must start making sustainability decisions even for a single flight. How do I taxi, climb, and cruise so that every flight is as low in emissions as possible?” Yann Cabaret, CEO of SITA FOR AIRCRAFT
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emissions we reduce while flying, the less money we need to spend on compliance efforts, such as offsetting.

The new tool from SITA combines various data sources and uses an advanced optimization engine and visualization to help airlines comply with global and regional decarbonization regulations while reducing costs. It will be launched at the end of 2024, just in time for a 2% sustainable aviation fuels (SAF) uplift at EU airports from 2025.

Aiming for net zero

Cabaret says net zero by 2050 is possible. Although SAF is obviously the main pathway, it is also the biggest challenge as scalability will be difficult to achieve.

He believes the opportunities are predominantly in embracing data and data sharing to understand all the touchpoints and enable emission-driven decisions to be made as a single stakeholder without disrupting the wider network.

"There are usable tools out there, so we are long past the ideas stage," Cabaret concludes. "A lot of hard work is being done in every pathway. But data is needed to help make the right decisions. We need aircraft data, weather data, airspace data, airport data, and even crew rostering data. All this and more is needed to properly optimize flights.

"Aviation is necessary for the world, socially and economically. But we must fly sustainability. That means airlines need real tools that make a difference on every flight, every day. SITA has those tools."

For more information:
Visit https://www.sita.aero/aircraft

the global Carbon Offsetting Reduction Scheme for International Aviation (CORSIA) to regional initiatives, such as RefuelEU, and national legislation, such as the SAF mandates in Japan, sustainability regulations are an increasing element in the airline business.

Airlines struggle not only because of the complexity of the overlapping rules but also because of the difficulties in tracking emissions. “Airlines are worried about what they may face on the regulatory front,” Cabaret adds. “We’re trying to remove that anxiety and are developing a new tool to ease their concerns.

“At the end of the day, if emissions keep growing, the regulations will become extremely expensive,” he adds. “That’s why it’s so important to use every decarbonization lever, even if it’s a small gain. Because the more operational
Capture, track and benchmark your passengers’ experiences

iata.org/paxinsight
You will always need people who know cargo and can understand its complexities,” he notes. “That is why we have a graduate program that accelerates career development.”

For air cargo, the challenge is changing the perception of the sector from dusty warehouses and paper-based bureaucracy to a vibrant industry in the midst of a rapid, innovative transformation.

“Our company’s purpose is to carry cargo that matters to the world, and we want to get young talent to be excited by that,” says Owen. “That should be their motivation. Air cargo and logistics is at the cutting-edge of technology and is a complicated and fascinating industry that requires a whole range of skills and disciplines and can provide a really satisfying career.”

Alongside skilled staff, modern cargo infrastructure is a must. The days of dusty old warehouses are becoming a thing of the past. A safe, secure, accessible, well-lit warehouse, ideally with the requisite special handling facilities and a sustainability roadmap, goes a long way to ensuring air cargo’s value proposition.

**Flying greener**

Success in air cargo will also depend on addressing the sustainability challenge. Cathay is committed to using 10% sustainable aviation fuels (SAF) by 2030, which will require a mammoth increase in its current uplift. Owen believes, however, that the target is a realistic one as long as sources and costs are factored in at the earliest possible opportunity.

SAF represent the biggest opportunity for carbon emission reduction, but Cathay Cargo...
runway excursions and incursions are two of the five global high-risk categories of occurrences (G-HRCs) currently identified in the International Civil Aviation Organization’s (ICAO’s) Global Aviation Safety Plan. Accurately detecting disturbances at the perimeter of airports is important for the safety of passengers and airport staff alike. However, as the grounds of an airport usually span several miles, monitoring this area is challenging and complicates security operations.

As a critical line of defense, perimeter detection systems are becoming a core part of airside safety.

During day-to-day operations, complex environments challenge the reliability and adaptability of protection measures along airport perimeters. This includes the likes of overgrown foliage, wayward pedestrians, wind, and rain. Conventional technology-assisted measures—such as vibration cables and microwave intrusion detection sensors—frequently generate false alarms, and other genuine issues are easily missed. Adding to the complexity, systems are often isolated from each other, making it difficult to implement the correct response once alarms are generated. The need for frequent alarm overrides deteriorates system trust and usability. Such systems also incur high construction and operation and maintenance (O&M) costs.

Perimeter detection solutions that converge multiple technologies are beginning to emerge in the airport industry to respond to these issues. Among them, integrated solutions like optical- and video-based perimeter detection are regarded as important approaches to safeguard airport perimeters.

Distributed Fiber Optic Sensing + AI Algorithms
Huawei’s Perimeter Security with Fiber Sensing Solution for smart airports is a scenario-based solution tailored for the airport industry. Using distributed fiber optic sensing along with AI foundation models, the solution can deliver 24/7 comprehensive long-distance coverage in any weather. The solution accurately identifies various types of intrusions and generates very few false alarms. This means more intelligent airport perimeter systems, safer operations, and a better work environment for airport staff.

Huawei’s Perimeter Security with Fiber Sensing Solution integrates a wealth of technologies, such as fiber sensing and identification, networks, digital technologies, and intelligent image processing, providing fresh ideas to manage and protect airport safety.

The distributed fiber optic sensing technology used in the solution relies on vibration-sensing optical cables, which greatly enhance airport perimeter detection. Huawei’s Perimeter Security with Fiber Sensing Solution withstands harsh weather conditions well because of its scenario adaptation, SuperColor cameras, and image stabilization despite strong winds. The solution relies on vibration-sensing optical cables that can differentiate interference like poor weather conditions from actual risks based on waveform learning. Efficient operations before and during an incident filter out factors such as ordinary passersby and inspection workers. This ensures vibration-sensing optical cables can effectively filter out interference from small animals, and alarms are reliable and valid.

In addition, the solution can be managed on a centralized software platform, which supports diversified functions, such as report, alarm, and warning. The platform displays the overall perimeter situation on one map.

Near-Zero Missed Alarms, Improving Airport Safety
Huawei’s Perimeter Security with Fiber Sensing Solution protects aircraft and ground handlers in protection zones,
eliminates or controls potential risks, and identifies and manages the impact of human factors on airport security to the maximum extent. This way, it improves airside safety and airport operational efficiency. Solution benefits include:

- **Near-zero missed alarms:** The solution employs all-optical coherent noise suppression and enhanced oDSP algorithms to prevent missed alarms. For this, it collects vibration signals with high sensitivity in the wide dynamic range (WDR) mode, and increases the optical signal collection rate to 99.9%.

- **Very few false alarms:** The solution integrates environment features with detail features to precisely distinguish intrusions from environmental interferences. It ensures that the daily false alarm per kilometer is as low as just one even in adverse weather conditions like strong winds and heavy rain. In addition, after collecting vibration signals, the solution extracts key intrusion features through vibration feature reconstruction and uses the domain-wide situation judgment mechanism to improve the alarm accuracy to 90%. The system can resist level-7 winds and heavy rain, significantly lowering the false alarm rate.

- **Easy deployment and O&M:** Conventional airport perimeter detection systems frequently generate false alarms and suffer costly O&M as a large number of sensing devices need to be deployed. Huawei’s solution deploys only one optical cable to detect and locate intrusions accurate to meters along a 20-km perimeter. The front-end optical cable is passive and O&M-free.

- **High-precision positioning accelerates incident response and handling**

  So far, the solution has been successfully deployed for commercial use at airports managed by Guangdong Airport Authority. In practice, the solution is more secure than conventional ones; in particular, it misses almost no alarms in such scenarios as ladders being put up against the razor wire of the metal fence. The solution outperforms vibration cables in terms of anti-interference performance across many scenarios, such as level-7 winds, heavy rain, and wake turbulence. It ensures less than five false alarms are generated on average every day along a 7.3km perimeter, reduces invalid reviews, and enhances system usability. Additionally, the solution improves the average precision of intrusion positioning to less than 1.32 meters, making it an ideal choice for building intelligent perimeters for airfields.

Aimed at developing smart airports, Huawei will continue leveraging its advanced information and communication technologies to comprehensively improve civil aviation services in terms of safety, efficiency, experience, and carbon footprint.

- **For more information on Huawei’s solution, visit**
  https://rb.gy/ck7jgq

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**Perimeter Security with Fiber Sensing Solution**

Enhance airport safety with **“0” Missed Alarms**
Cathay Cargo has reached 50% recycling on its plastic sheeting and is also dealing with physical waste involving pallets and other packing materials. Owen. “The low hanging fruit is starting to disappear and now we really need to focus on SAF and ensure the industry gets the supply it is clearly demanding.”

A different perspective
Owen concludes that the Cathay Cargo business model has taken years to build. After all, the airline started out carrying cargo, and logistical expertise—accompanied by the necessary investment—is part of its DNA. “We have always had a different perspective on cargo and know it matters to the Cathay Group performance,” he says. “But I think the profile of the overall cargo industry has risen following the pandemic. Air cargo is being recognized as a vital part of humanitarian aid and we would like to expand our support for companies such as Airlink in this area.”

Owen now wants to see the recognition of air cargo as a key player in the world economy reflected in policy and investment. Free moving global trade is a positive for economic growth, he says, and trade restrictions, burdensome tariffs or ill-thought-out security measures push that ideal further from the world’s grasp. “Digitalization, operational excellence and sustainability are our priorities, and they are at the top of the industry agenda too,” he sums up. “We are moving in the right direction and if we can all get our partners in the supply chain to move with us, our journey—and the journey of our shipments—will be faster, safer, and environmentally friendly.”

has also invested in a new fleet, with six Airbus A350 freighters to be delivered from 2027 and rights to acquire an additional 20 more. Initially, these will complement the 20 Boeing 747 freighters, but Cathay is still evaluating its cargo fleet needs for the future. Owen reveals one eye is being kept on hydrogen power development but agrees that this is a longer-term solution.

A host of other initiatives are playing their part in the quest for net zero. The carrier offers a corporate SAF purchase program, the first of its kind in Asia, for example, and shippers can buy Fly Greener carbon offsets through the Click and Ship portal when booking their freight.

Moreover, Cathay Cargo has reached 50% recycling on its plastic sheeting and is also dealing with physical waste involving pallets and other packing materials. A Hong Kong charge on waste is driving rapid development in this area. Solar power, improved air conditioning, and other new technologies will also be part of Cathay Cargo’s sustainability program.

“There are still a lot of unknowns, but we do know that we have to get to net zero,” says Tom Owen, Director of Cathay Cargo.
It’s hard to imagine a world without any flying. But we can’t continue to live with its impact on the planet. The path to more sustainable flying is here. And with it, a choice—to fly with renewable fuels. A choice we must all make together as passengers on the greatest flight of all.

Choose to fly more sustainably with Neste MY Sustainable Aviation Fuel™.
You should see what’s on our horizon.

We’re adding 24 new gates to support our growing economy.

It’s all part of our mission to transform travel. Whether it means investing in terminal improvements, expanding runways, providing award-winning service to millions of travelers or taking on massive conservation efforts to better protect our planet — we’re doing everything we can to improve the travel experience and create a better future.

Find out more about DFW International Airport and why it should be part of your plans today.