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VOLUME 5 - ISSUE 19 - YEAR 2023

# AVIATION TURKEY

**AN EXCLUSIVE  
INTERVIEW WITH  
AHMET BOLAT**  
TURKISH AIRLINES  
CHAIRMAN OF  
THE BOARD OF  
DIRECTORS &  
THE EXECUTIVE  
COMMITTEE

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WILL OPERATE**  
IN AROUND 8 TO  
10 MEGACITIES  
INCLUDING EUROPE  
AND NORTH  
AMERICA IN NEXT  
5-10 YEARS

**NANOTECHNOLOGY  
IS IN THE AIR**

**AN EXCLUSIVE INTERVIEW  
WITH DARREN HULST**  
BOEING VICE PRESIDENT,  
FOR COMMERCIAL  
MARKETING

**DEMO FLIGHT  
OF ACH160 FOR  
SELECTED MEDIA  
MEMBERS AT GENEVA**



OCTOBER 11, 2023, ISTANBUL, TÜRKİYE

# AIR TRANSPORT LEADERS CONGRESS



## SCHEDULE

10:00–18:00 Conference

18:00–18:30 Short break and drinks

## KEY TOPICS

- West and Central Asia, the Persian Gulf and India: region outlook
- Development of the Air Transportation Network in the Region
- Arab Air Transport Market Outlook
- Will the countries of West and Central Asia, the Persian Gulf and India become a new global aviation center?
- Airports' Leaders Updates: Lessons from Overcoming the COVID-19 Crisis and New Challenges
- Digital Initiatives: Shaping the Future
- Understanding and Building Digital Strategy Around your Customer

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Co-Founder & Chief  
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# AVIATION TURKEY

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# Aviation Megatrends: Emergence of New Business Models

McKinsey & Company organized a panel focused on Aviation Trends that will dominate the news in 2024 at the Paris Airshow. McKinsey experts will share original data and analysis to put these trends in context and offer recommendations on how to address challenges and opportunities on current issues of the sector, sustainability, and future air mobility.

According to the analysts, five disruptive megatrends could converge in the coming years within commercial aviation: autonomy and robotics, greater emphasis on sustainability concerns, novel propulsion technologies, emergence of new business models, and greater use of data fusion and advanced analytics

Some trends, such as robotics and advanced analytics, are already transforming the commercial aviation value chain, while others, such as autonomy, novel propulsion, and greater emphasis on sustainability, are

expected to accelerate in the coming years. Together, these megatrends could radically alter the aviation landscape.

The five megatrends will have varying impacts across the value chain in the long-term. McKinsey experts estimate that novel propulsion and sustainability alone could affect 30 percent of all commercial revenues across the value at risk by 2050. This could play out in different ways. For instance, component manufacturers may see a shift towards electric- and hydrogen-powered aircraft. For airlines, approximately 20 percent of revenue could be indirectly affected as customer concerns about the climate potentially slow demand for aviation and as carriers may be forced to pass along cost premiums for sustainable aviation fuel (SAF) to customers. (Recent price increases in air travel suggest that customers may be more price inelastic than previous thought, however). Lessors could see shifts in the residual value of

their assets as new types of aircraft with better operating costs enter the fleet. Fuel suppliers may need to shift significant portions of their business away from fossil fuels toward SAF and may also see significant demand for liquefied hydrogen, although as we have previously written, the costs of this shift will be significant.

These megatrends could also create new opportunities for margin expansion for incumbents. Autonomy and automation could increase margins by helping operators more efficiently plan crew schedules while also long-term, reducing the total number of pilots required to operate aircraft. Manufacturers could benefit from more efficient production operations with the help of robotics and industrial automation. Data-enabled services will leverage advanced analytics to help players across the value chain improve efficiency and plan more effectively—for example, through predictive maintenance,



route optimization, and disruption management. Electric-powered aircraft, while limited to short-haul flights in the near-future, could substantially reduce operating costs through lower maintenance requirements and improved efficiency.

In addition to margin expansion, the megatrends could also create new value pools. It is estimated that these new businesses could generate nearly \$50 billion in revenue in commercial aviation by 2050. For instance, charging infrastructure could represent approximately \$7 to \$11 billion in market opportunities, while hydrogen infrastructure could represent \$8 to \$12 billion. Some new





markets could start to generate revenue this decade. For instance, demand may increase for rideshare vehicles or for B2C customer platforms that customers can use to plan a single trip involving multiple flights. Regional air mobility could also see an uptake if new manned air mobility solutions, such as electric vertical take-off and landing vehicles, become available and begin operating in urban settings and if new point-to-point regional routes begin operations. Other markets, such as autonomy and hydrogen infrastructure, could take decades to mature.

Aerospace incumbents are also likely to continue to engage in M&A activity involving disruptors. As they plan their strategy,


it may be helpful to consider the benefits of a programmatic approach—one that involves making frequent small or mid-sized bets. Research shows that incumbents in advanced industries—sectors such as semiconductors, automotive and assembly, and manufacturing—tend to have higher total shareholder returns if they engage in programmatic M&A, rather than making large deals, placing selective bets, or primarily focusing on organic growth instead of acquiring companies.

Within the concept of McKinsey experts' estimations, while incumbents in commercial aviation are focused on near-term operating challenges,

they will also need to plan for the disruption that is already appearing at the margins of the industry.


According to the analysts, companies must understand how specific megatrends will disrupt their business, as well as the extent and timing of their impact. They will also need to identify the signals to prompt action and decide how they participate (for instance, when to shift from R&D partnership to scale). Identifying and prioritizing new value pools will be critical. Senior teams and boards must align on the need for transformation, despite the potentially longer timeline for value capture. They should ensure that employees, customers, investors, and suppliers understand the

changes. Companies may need to make new technology investments (both internally and through acquisitions) and develop a new market and sales strategies. While all companies have distinctive internal capabilities, they should also determine if they need external partnerships to acquire key technologies and build scalable ecosystems. Another consideration is whether they can harness outside sources of capital to de-risk future investment decisions.

Enjoy the issue... 

**Ayşe Akalın**  
Editor in Chief

A handwritten signature in black ink, appearing to read 'Ayşe Akalın'.



**"Our goal is to increase our fleet to 813 aircraft by the year 2033."**

An Exclusive Interview with Ahmet Bolat,  
Turkish Airlines Chairman of the Board of Directors  
and the Executive Committee





## INTERVIEW

**✈️ Ayşe Akalın: Can we get information about Turkish Airlines' expectations and strategic goals for 2023?**

**Ahmet Bolat:** In the first six months of this year, we carried approximately 39 million passengers. This means an increase of 20.1% compared to last year and 9.3% compared to 2019. We expect to carry over 86 million passengers throughout 2023. As of today, we have a fleet of 425 aircraft, including 114 wide-body, 287 narrow-body, and 24 cargo aircraft. By the end of the year, we will reach a fleet size of 435 aircraft. We increased the capacity (ASK) we offered in the January-June period by 18,3% compared to last year. We had already caught up with pre-pandemic capacity in April 2022. We expect to be over 15-20% above 2022 by the end of 2023. We continue our success financially as well. We earned approximately \$4.4 billion in revenue in the first quarter of the year. We aim for a total revenue of over \$19 billion by the end of the year.

As you know, we recently shared our 10-year strategic goals with the public. We aim to double our capacity with an average annual capacity (ASK) growth of 7.4% until 2033, have a fleet size of over 800 aircraft, carry 171 million passengers by 2033, and aim for a total revenue of over \$52 billion.



On the air cargo side, our goal is to be among the top 3 airlines in terms of market share. We will increase the share of high-value special cargo in total cargo revenues to 55% and increase our total cargo carried to over 3.9 million tons in 10 years. In addition, we will create a cargo ecosystem with partnerships, e-commerce, and technology investments and reach a total cargo revenue of \$9.6 billion with this ecosystem.

We are corporatizing AnadoluJet, which we launched its operations to also foreign countries in 2020. We are steadily expanding its fleet with new generation aircraft to provide cost and

competitive advantages. While it had 64 aircraft at the end of last year, it has 82 aircraft today, and we will increase the AnadoluJet fleet to 200 aircraft in 10 years. As AnadoluJet grows, the proportion of new-generation aircraft in its fleet will reach 65% in 2024 and 98% in 2028.

Digital transformation is very important in achieving differentiation and competitive advantage, and we aim to be among the top 3 airlines in digitalization among airlines. In this context, we attach importance to R&D activities. We will increase the share of R&D expenditures in revenue to 1% by 2033.

Of course, another important issue here is sustainability. As is known, new generation aircraft have 15-25% less carbon emissions compared to the previous generation. We are also gradually increasing new generation aircraft in our fleet. By 2033, 75% of our fleet will consist of new-generation aircraft. We will achieve an additional 5% fuel consumption savings with operational improvements we will make. Although limited, we started using Sustainable Aviation Fuel (SAF) on certain European routes. We will increase both their number and frequency. By 2050, we aim to be a Carbon Neutral airline.



The most emphasized issue for Türkiye's flag carrier airline is our contribution to the country's economy. When we reach our strategic goals for 2033, we will have increased our contribution to the Turkish economy to \$144 billion. In this context, we will continue our activities for promoting Turkish tourism in coordination with our state institutions.

**Ayşe Akalın:** Despite the rapid increase in demand for new aircraft in commercial aviation, aircraft manufacturers couldn't respond adequately due to supply chain problems stemming from workforce shortages in medium and small-

sized suppliers in 2022. How was Turkish Airlines affected by this process? Have there been delays in new aircraft orders or the procurement of spare parts for existing aircraft? Do you anticipate that supply chain-related delivery issues will continue in 2023? What measures are being considered to address this?

**Ahmet Bolat:** As the global supply chain continues to suffer, aircraft manufacturers' processes have been significantly and negatively impacted, causing aircraft deliveries to be delayed. Specifically, after Covid 19, we are experiencing delays for A321Neo's in our order book

that has been delivered and continues to be delivered until 2025. Similarly, we are also facing supply chain issues with certain aircraft parts. This has a negative impact on maintenance operations and capacity.

While supply chain issues are expected to continue on a global scale, we do not know how long this will last. In order to manage these ongoing circumstances, which have a direct impact on our operations and capacity, we are making moves to support our fleet, which currently consists of 425 aircraft. In this respect, with the new generation being our priority, we are evaluating the options of purchasing new and existing generation aircraft or long and short-term leasing options in line with market conditions and our capacity needs.

**Ayşe Akalın:** As the airline that flies to the most destinations globally, could you tell us about Turkish Airlines' current number of aircraft and the new destinations targeted for the end of 2023?

**Ahmet Bolat:** As of today, we have a fleet of 425 aircraft, including 114 wide-body, 287 narrow-body, and 24 freighter. Of these, more than 100 are new-generation aircraft with high fuel efficiency and are environmentally friendly. By the end of the year, our fleet size will reach 435 aircraft. In the past period of this

year, we added Krakow in Poland and Palermo in Italy to our flight network. In the second half of the year, we will restart our flights to Osaka, Japan, where we flew before but stopped flying in 2017, and Detroit in the USA. We also want to add the 6th continent to our flight network by starting flights to Australia as well.

In addition, there are new airports planned to be opened domestically by the end of the year. If Adana Çukurova, Yozgat Airport, and Bayburt-Gümüşhane Airport become ready for flights and open, we will start flights there as well.

**Ayşe Akalın:** During your speech at the IATA General Assembly held in İstanbul on June 4-6, 2023, you announced that a total of 600 new aircraft orders would be placed, including 400 narrow-body and 200 wide-body aircraft, with preferences for A320neo and B737MAX models for narrow-body, and B787 and A350 models for wide-body. Turkish Airlines plans to double its fleet to 814 aircraft and increase passenger numbers to 171 million by 2033. Could you provide an update on the ongoing supply efforts and contract negotiations for the wide-body and narrow-body aircraft needs of Turkish Airlines?

**Ahmet Bolat:** Within the framework of our Incorporation's 2023-2033





strategic plan, our goal is to increase our fleet to 813 aircraft by the year 2033. In line with this objective, we are currently holding dialogues with Airbus, Boeing, engine manufacturers, and other companies. We have communicated our requirements in line with our fleet plan to Airbus and Boeing through letters. Similarly, we have notified engine manufacturers and are awaiting their proposals. In addition, to purchase agreements for narrow-body aircraft, we are also exploring leasing options. Likewise, for wide-body aircraft, we can consider utilizing market opportunities if the need for additional capacity rises. As the flag carrier of Türkiye and the airline that flies to more countries than any other airline in the world, increasing our passenger number while simultaneously renewing our fleet to enhance the quality of service we provide is among our goals.

**Ayşe Akalın:** What is Turkish Airlines' perspective on Regional Passenger Aircraft? There were reports in written and visual media in 2022 that middle-range, single-aisle models like the A220-300 and Embraer E195-E2 were being considered for regional passenger aircraft needs, and a choice would be made between these two models. Will the selection of the regional passenger aircraft be made in 2023?

**Ahmet Bolat:** Both Embraer E2 and Airbus A220 will be useful for us. The engine agreement and our expectations will be decisive here. But as you mentioned, our priority here is the total 600 narrow-body and wide-body orders. Considering that the number of regional jets will be around 30-40, their effect on the total capacity will be very low. Our priority is to finalize the narrow-body and wide-body orders. We will look into this issue after shaping the main fleet.

We aim to reach more destinations with regional jet aircraft and ensure operational continuity, thanks to the cost advantages these aircraft may provide. However, in order for the operations to serve Turkish Airlines in the most beneficial way in accordance with our goals, detailed studies are still ongoing. We are continuing our discussions with both companies, and our teams are conducting thorough evaluations. We do not have a specific timeframe for aircraft selection. Our aim is to choose the aircraft that is the most suitable for us and that we can use in the most advantageous way for our operations. In order to decide on the addition of these aircraft to our fleet, we need to minimize the risks involved. The support of the Aircraft and Engine manufacturers in this regard is crucial; they should be as enthusiastic as we are about making this operation happen. We hope that with regional

jet aircraft, we will be able to reach new destinations more easily, expand our operations, and carry more passengers with Turkish Airlines.

**Ayşe Akalın:** Will there be demands such as offset (domestic manufacturing of fuselage and parts) for both wide-body and narrow-body aircraft acquisitions, as well as for Regional Passenger Aircraft acquisitions? With such a significant purchase, what specific requests and demands will be on the table to support our domestic aviation industry?

**Ahmet Bolat:** As the flag carrier, Turkish Airlines works with great devotion to increase the investments of manufacturers in Türkiye and to contribute to the development of the aviation ecosystem. Until now, within the framework of our current agreements, manufacturers generate direct jobs in the Turkish aeronautical industry and continue to develop their sourcing in Türkiye to procure a level of Billions\$ of turnover from Turkish suppliers. Turkish Airlines subsidiaries and Turkish Companies have been an integral part of the supply chain for over 20 years and are a partner in the main aircraft programs of aircraft manufacturers.

It will be our first priority from the manufacturers to long-term industrial cooperation through


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the placement of work packages that include the transfer of technology, which help to build skills and competencies in the Turkish aviation industry and increase the business volume and turnover of our companies.

Turkish aeronautical industries progressively embarked on high capabilities and skills in the last 10 years, and in this context, with the new aircraft bidding and aim of positioning Türkiye as a strategic growth country for manufacturing companies, our commercial negotiations will continue with companies under the headings of development of industry & technology, manufacturing, service-maintenance-repair work packages, and qualified manpower training.

**Ayşe Akalın:** Could you tell us about the planned new pilot and cabin crew recruitments for 2023? How was

**Turkish Airlines affected by the Turkish Air Force's call of retired pilots to duty? How is the pilot shortage being addressed?**

**Ahmet Bolat:** The aviation industry has had difficult times in the last 3 years. Especially during the pandemic, many airlines parted ways with their employees in these difficult conditions, but we preferred to protect our team, and we all saw and experienced the positive outcomes of this. We have overcome the difficult times we have experienced together as the entire Turkish Airlines family, and we continue to achieve greater success together. In pilot recruitment in 2023;

- 577 Inexperienced II. Pilot (Typeless),
- 79 Experienced II. Pilot,
- 9 Experienced Captain Pilot
- 155 II. Pilot candidates to be trained, a total of 820 people have completed their evaluation

*processes, and their recruitments have been realized. In addition, evaluation processes for the closed II. Pilot candidate and inexperienced pilot announcements are still ongoing. We continue to carry out additional employment in addition to the experienced and inexperienced pilot recruitments we mentioned. We plan to reopen these announcements according to the needs and training capacity situations and continue to grow and employ without slowing down.*

We currently have approximately 6400 pilot employees in total. Our experienced pilot announcements are currently available on our official career website, kariyer.thy.com. In addition to experienced pilots who start working, we continue to recruit new ones. Our experienced candidates can review the announcements on the career site and apply.

## In cabin crew recruitment in 2023

With the announcement opened for our summer season needs in 2022 for our needs in the summer season of 2023, a total of 1900 Cabin Crew employees joined the Turkish Airlines family, and with this recruitment, the total number of our cabin crew reached 14,500. Our cabin crew announcement is currently available on our career site (kariyer.thy.com) for the cabin crew need for the summer season of 2024, and applications are still ongoing. This announcement will be removed from publication on August 10, 2023, and evaluation processes will begin. Our candidates who want to become Cabin Crew and meet the announcement criteria can apply. At least 2000 cabin crew members are also targeted to be recruited for next year.

In addition, evaluation processes for our Disaster Victim Cabin Crew announcement published in April and applied by around 13 thousand candidates are still ongoing. Within the scope of this announcement, we are going to Adana and Gaziantep in July to conduct interviews in the region. Within the framework of the Disaster Victim Cabin Crew announcement, we want to gain approximately 300 candidates from the earthquake region into our big family.





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**Turkish Airlines is the 13th biggest airline in terms of market value**

Ranking	Ranking Change (Yearly)	Airline	Market Value (bn USD)	Change (Yearly)
1	+2	Delta	30.6	65%
2	-1	Southwest	21.5	1%
3	+2	Ryanair	21.4	60%
4	+3	United	17.9	55%
5	-3	Air China	16.5	-22%
6	+2	Singapore	15.7	44%
7	-3	China Southern	13.8	-15%
8	-2	China Eastern	13.0	-2%
9	+3	Indigo	12.3	57%
10	+6	Lufthansa	12.3	75%
11	-1	American	11.7	42%
12	-3	Ana Japan	11.5	29%
13	+12	<b>Turkish Airlines</b>	<b>10.3</b>	<b>165%</b>
14	+4	IAG	10.1	56%
15	-1	Japan Airlines	9.4	22%

Source: Bloomberg

Our ranking in terms of market capitalization increased to 13. from 25. compared to June 2022.



**Most Valuable Turkish Companies (June 2023)**

Ranking	Ranking Change (Yearly)	Company	Market Value (bn TRY)	Change (Yearly)
1	+5	Sesa	301.6	230%
2	+7	<b>Turkish Airlines</b>	<b>267.3</b>	<b>314%</b>
3	+1	Ford	267.0	185%
4	+1	Koç Holding	263.0	185%
5	-4	Ereka	175.8	70%
6	+1	Toprak	152.8	131%
7	-5	İş Bankası	142.3	40%
8	-	Şişecam	136.2	107%
9	+1	Garanti Bankası	134.6	131%
10	-7	Ereğli	128.5	35%
11	+7	Tofaş	126.3	321%
12	-	Aselsan	124.1	136%
13	+3	Yapı Kredi	109.6	200%
14	-	Albarak	105.0	152%
15	-3	BİM	103.5	111%

Source: Bloomberg

Turkish Airlines became the second largest company in Borsa İstanbul rising from the ninth last year.

**Ayşe Akalın: Can we have your assessment of Turkish Airlines' market value as of June 2023?**

**Ahmet Bolat:** During the last twelve months, our strong operational and financial performance translated into a significant increase in our share price and market value. Turkish Airlines share price rose by more than 150% year over year, marking one of the highest in the industry. As a result, we became the 13th biggest airline in terms of market value of US\$ 10.3 billion rising from the 25th in June 2022. We also became the second largest company in Borsa İstanbul, climbing from the 9th last year by considerably overperforming Borsa İstanbul 30 Index.

**Ayşe Akalın: What advantages does Istanbul Airport provide to Turkish Airlines and Turkish Civil Aviation?**

**Ahmet Bolat:** Istanbul Airport is the transfer hub where the world meets each other, thanks to its geographical location. With the increased slot and capacity offered by Istanbul Airport to us and other airlines, growth in existing and new markets can be supported. We started to feel the positive impact of the airport, where we manage the majority of our operations, especially after the third runway was put into service. While the number of flights per hour during the peak period was 72 at Atatürk Airport, with Istanbul Airport, we increased this number to

**Our share price increased by 153% year over year marking one of the highest in the industry**



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\*Yield: Weekly share price change in terms of USD indexed to 1 July 2022. Source: Bloomberg

**Turkish Airlines overperformed Borsa İstanbul-30 Index by more than 150%**



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\*Yield: Weekly share price change in terms of TRY indexed to 1 July 2022. Source: Bloomberg

110-120. In addition, the decrease in our aircraft waiting rates has become an important advantage for both financial savings and uninterrupted operations.

Aiming to become one of the world's largest hubs in the field of cargo, Istanbul Airport is one of the best cargo facilities in the world in terms of infrastructure and technology. As of 2022, we combine all our cargo processes with our SmartIST cargo facility, which has an annual cargo handling capacity of 2.2 million tonnes. Istanbul Airport and SmartIST offer the opportunity to connect

our share in global trade from Istanbul with our increasing service quality and capacity.

Istanbul Airport has had a major impact on Türkiye's transformation into a major player in global aviation with the advantages it provides. While Türkiye ranked 7th in the international passenger market in 2022, more than 40% of international passengers were carried from Istanbul Airport. For the third consecutive year in 2022, Istanbul Airport was the airport that welcomed the highest number of passengers in Europe and

ranked 2nd in the world in terms of international hub connectivity in June 2023. The contribution of Istanbul Airport to Turkish Airlines and Turkish Civil Aviation will increase exponentially along with the participation of new airlines starting to fly to Istanbul.

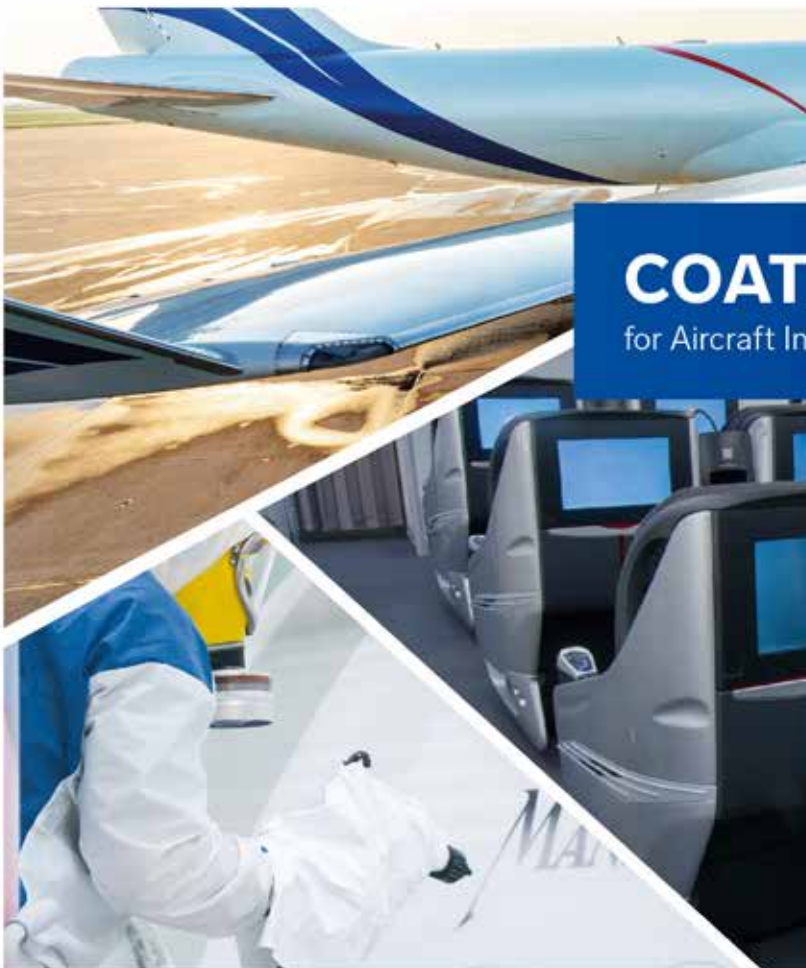
 **Ayşe Akalın:** In May 2023, Turkish Airlines Flight Academy (TAFA) signed an agreement with TUSAŞ to produce a total of 20 single-engine, propeller training aircraft in Türkiye, 10 of which are firm orders and 10 are options. Can we get information about

the timeline of this agreement and the technical specifications of these aircraft to be delivered?

**Ahmet Bolat:** TUSAS plans to deliver a total of 20 aircraft (10 in 2026, 10 in 2027) to Turkish Airlines Flight Academy,

The features that are requested to be in airplanes are briefly:

- Single-engine (Lycoming if it's possible)
- 4-seat aircraft.
- Autopilot system,
- ADSB in/out system,
- TAS (Traffic Advisory system)- (the system



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that reports air traffic and where aircraft see each other)

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- EASA certificate.

**Ayşe Akalın:** Can we get information about the number and models of flight simulators in Turkish Airlines' service? Is there a plan to increase the number of simulators parallel to the increase in aircraft and pilot numbers? Could you enlighten us about the modernization efforts of existing simulators, ongoing procurement efforts for new simulators, and the simulators ordered under the contracts signed with HAVELSAN, as well as their delivery statuses?

**Ahmet Bolat:** Turkish Airlines has 24 full-flight simulators (FFS) operating at two training centers close to the Atatürk Airport in Istanbul. All simulators are certified by EASA (European Aviation Safety



Agency) and qualified with a CS-FSTD Level-D training certificate. Our state of art full-flight simulators fulfill not only THY's pilot training needs but also serve training to third-party airline operators.

Our simulator fleet consists of the following types;

7xB737 simulators,

3xB777 simulators,

2xB787 simulators,

6xA320 simulators (two of them CEO/NEO convertible),

4xA330 simulators and (one A330/A340 convertible) and 2xA350 simulators.

As part of THY's growth projection of the aircraft



fleet for the next 10 years, a proportional increase in the number of simulators is expected to serve the future high demand for pilot flight training.

As all of our flight simulators are EASA certified, they are modernized with regard to the aviation regulatory requirements published by EASA in terms of the continuity of the certificate, as well as taking into account the modernization works carried out on the aircraft fleet.

5 Full flight simulators (2x B737-MAX and 3xA320 NEO/CEO convertible simulators) have been purchased from Turkish Simulator manufacturer Havelsan A.Ş. in Ankara. One B737-MAX was already delivered and qualified by EASA in April 2023, and it is presently in training operation at the THY Flight Training Center. We are expecting delivery of a second B737-MAX simulator and one A320 CEO/NEO by the end of this year. The remaining two A320 simulators will be delivered in 2024 🌐





# Sharing Athenian Stories

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DISCOVER THE HIDDEN GEMS  
OF THE ATHENIAN NEIGHBORHOODS.







“Türkiye remains an incredible growth market and has already proven itself as a significant market.”

### An Exclusive interview with Darren HULST, Boeing Vice President, for Commercial Marketing

**Aviation Turkey:** Can we start our interview with getting an overview of Boeing’s perspective on the first 6 months of 2023? How many orders have you received for commercial airplanes, and how many of them have been delivered during the first half of 2023?

**Darren Hulst:** I guess the best way to talk about the first half of 2023 is that we’re moving very close to full recovery in most parts of the world from the pandemic, back to pre-COVID levels of traffic. We’ve seen an acceleration across the world. In fact, Europe and North America are essentially back to pre-pandemic levels, and in Türkiye, there are very strong levels of traffic both domestically and internationally. Order

activity and demand for aircraft have never been higher. In fact, to the point where our aircraft products are sold out well into the middle or the end of this decade because of the strong demand as airlines look to find new technology aircraft to replace and grow their fleets for both short and long-haul service.

**Aviation Turkey:** Boeing has had a presence in the Middle East, Türkiye, and Africa for around 75

years. Boeing has offices in the United Arab Emirates (UAE), Türkiye, South Africa, Egypt, Kuwait, and the Kingdom of Saudi Arabia. Today, the Middle East, Türkiye & Africa (META) region is one of the world’s fastest-growing commercial airplane markets. How much of Boeing’s commercial airplanes business comes from the META region? How important is it to you globally? What potential does the META market have?



**Darren Hulst:** It's more than 10 percent. In terms of long-term demand, we see the Middle East, including Türkiye, well over 10 percent of demand. Türkiye sits between Europe and the Middle East in many definitions of regional demand. What I find fascinating about the Turkish market is its strong local market domestically and its favorable geography for traffic to and from Europe, Asia, and the Middle East. It's perfectly positioned for growth, not just in the short term, but in the long term as well.

**Aviation Turkey:** How important is the Middle East market for you?

**Darren Hulst:** It's critically important to us because it's a crossroads of people, economies, and trade. It's also a great way for connections to be made, especially these days, we see a lot of long-haul international traffic connecting through the Middle East region. This region connects vibrant emerging markets with strong economies, both in Europe and North America, making it very important to Boeing. I believe we have strong partners in the region.

**Aviation Turkey:** Do you currently have potential customers in the region?

**Darren Hulst:** We're always in discussions. We work closely with all our customers, but we don't talk about individual deals. Nevertheless, we are



Boeing 737MAX was made a demonstration flight on Paris Air Show 2023, June

absolutely excited about the potential in the market.

**Aviation Turkey:** In 2022, the commercial aviation market started to recover from the impacts of the COVID-19 pandemic. However, this time, even though there was a rapid increase in demand, it exceeded the global aviation industry's ability to adapt and maintain adequate service to meet this demand. Do you expect the current supply chain problems, mainly stemming from labor shortages at medium and small suppliers, to continue in 2023?

**Darren Hulst:** I think we are seeing more stability starting to come into our supply chain. Obviously, it's a challenge that will remain with us in some form for more than just this year. But I think we're seeing positive signs in terms of our ability to get our products from our supply chain in a more-timely manner. But I think, most importantly, we're making long-term investments that we need

to support market growth in the region.

**Aviation Turkey:** What innovative technology areas will Boeing focus on in the near term?

**Darren Hulst:** There are so many things to talk about with our new products. The 737 Max family, the 787 family, and even the 777X, which is entering service in 2025, all result in efficiency savings well above 20 percent over the aircraft they replace. These technologies are the first we're bringing to market, but we're never sitting back and waiting for innovations for our next products in the next 10 years or the years after that. Sustainable aviation fuel is a key element of our sustainability strategy, helping to provide and influence the market to invest in the scale of those fuels that we will need to help decarbonize commercial aviation.

**Aviation Turkey:** Can you tell us more about your sustainable aviation fuel (SAF) activities,

which have been a core focus in recent years?

**Darren Hulst:** The four main areas that we're looking at in terms of supporting our sustainable goals, one is in the near term, replacing old aircraft with new technology aircraft, and that's a huge savings for the airlines in terms of cost but also, in terms of emissions. Second piece is helping the industry and the infrastructure of aviation work more efficiently, whether it is air traffic control or other ways for more efficient routing of aircraft. And the third piece is I think the biggest as we look to between now and 2040-2050 investing in and providing the scale of sustainable aviation fuel that the industry needs is the only way for the industry to reach its target. The last piece is probably the one that's the longest in terms of achieving it, but its new technologies, its where do we go for the next type of aircraft and what technologies will form the basis for future new airplanes in our lifetime?

## INTERVIEW



**Aviation Turkey:** In November 2020, Boeing received approval from the Federal Aviation Administration (FAA) to return the 737 MAX to operations. However, in April 2023, Boeing paused deliveries of its best-selling 737 MAX aircraft due to production issues stemming from a supplier's "non-standard manufacturing process" on the aft section of the fuselage. Have you resolved this issue? Can you provide an update on the current status of 737 MAX production and deliveries? How many airlines around the world are currently flying the 737 MAX, and what feedback have you received on its safe return to service?

**Darren Hulst:** I'll start with the feedback from our customers has been incredibly positive. In many cases our airline customers are seeing more savings in terms of the performance of the aircraft than what we even told them and so even more benefit than what they planned. Their passengers are very excited to fly the aircraft because

it's quieter. Obviously, it's a great passenger experience that builds on what we had 737NG, but as it relates to deliveries. We did pause deliveries briefly in April 2023. We since resumed deliveries at the end of April and last month (May) delivered well over thirty-seven 737 MAXs, it's something that we continue to always watch. I mean our supply chain, our own production to make sure, we deliver the highest quality products, and we will continually make sure and ensure our processes are stable, safe and ultimately provide the best products to our customers.

We are constantly working with our suppliers, our supply chain and our own processes to make sure that, like I said, we have the best quality no matter what. These non-standards, these non-conformances are tiny in some cases even imperceptible, but we want to make sure.

**Aviation Turkey:** In March 2023, Boeing resolved issues impacting deliveries of its 787 Dreamliner. However, on June 6, 2023, Boeing

revealed another quality problem involving fittings on the widebody jets' horizontal stabilizers, which caused delays in deliveries of some 787 Dreamliners. Can you provide an update on the efforts to fix this quality problem? Have you completed inspections and fixes on all 90 Dreamliners in your inventory?

**Darren Hulst:** Yes, since then, we have already completed rework on more than five aircraft and delivered our first aircraft since the pause in deliveries. It reflects how important quality is to us and our commitment to delivering the best products to the market. We have resumed deliveries of the 787 and expect this to continue as we complete adjustments and rework on the aircraft.

**Aviation Turkey:** How is Boeing addressing the future of commercial aviation? What kind of new products do you see a demand for in the coming years? What can the industry expect in terms of new products and services from Boeing to strengthen its market-leading product

lineup and meet the evolving needs of global customers?

**Darren Hulst:** From my perspective, a lot of new technology aircraft are just entering the Market last five years and within the next five years. So, we're bringing new family members to our commercial products, we're continually innovating on our existing families, we're bringing new capability. For example, on the 787 for more range, more efficiency, the 777X will be the best large aircraft of the commercial market has ever seen. So, in the in the next decade and 15 years, it's going to be our customers realizing those efficiencies. But we also are looking for kind of over the horizon to see what else in what technologies will be available and a lot of that depends on engine technology and new aerodynamics but even potentially alternative fuels. And we continue to look at areas like hydrogen, hybrid, electric and also different sizes of aircraft that could achieve commercial use. Because as we know, the most challenging thing is to fly an airplane as big as the 737 or larger with electric batteries. Because the technology isn't there yet, so we're looking at what parts of the market might be disrupted with new technology, and maybe it's the smaller size first.

**Aviation Turkey:** Can you elaborate on Boeing's current cooperation with Turkish airline operators?

How many orders have you secured from Turkish airline operators for Boeing jetliners, and how many have been delivered in 2022? How many more are expected to be delivered in 2023 to end users?

**Darren Hulst:** Türkiye remains an incredible growth market and has already proven itself as a significant market. Turkish Airlines, now the largest airline in Europe, operates in a strategic location between Europe and the Middle East, making it a limitless opportunity with a new airport and the geography that Istanbul occupies. We delivered:

- 1787-9 to Turkish Airlines in 2023
- 4 MAX to SunExpress in 2022
- 1 MAX and 2 787-9 to Turkish Airlines in 2022

**Aviation Turkey:** Aiming to increase its passenger numbers by 74% to 170 million in the next decade, Turkish Airlines, will order some 600 aircraft in the next decade. During IATA AGM 2023 held in Istanbul during June 4-6, 2023, Turkish Airlines Board and Executive Committee Chairman Ahmet BOLAT disclosed that they will procure 400 narrow-body and 200 wide-body airplanes and the number of aircraft in THY fleet will be increased to 425 by the end of 2023. For narrow-body requirement A320 Neo and B737 Max and for wide-body requirement B787 and A350 are being



Ayşe Akalin met up with Darren Hulst at Paris Airshow 2023

evaluated. It is also said that the aforementioned 600 aircraft order will also cover some 25 to 30 B77X and A350XWB aircraft. What can you tell us about the status of your negotiations with Turkish Airlines? Does this procurement effort also cover local content or offset issues?

**Darren Hulst:** Obviously, we are working closely with Turkish Airlines on its fleet needs. In regard to the 600 aircraft, we stand ready to provide to provide the right products for their needs, not just in the near term, but in the long term. We have a strong supply base in Türkiye, and we aim to continue growing it to support the needs of our production and products. Because almost every single one of Boeing aircraft is supplied by parts made in Türkiye and we would continue to develop our relationship.

**Aviation Turkey:** Negotiations with Turkish Airlines regarding their procurement plans are ongoing, is that correct?

**Darren Hulst:** I can't speak about individual negotiations, but what I can say is that we have strong partnerships in Türkiye that we aim to continue growing.

**Aviation Turkey:** What can you tell us about Boeing's participation at Paris Airshow 2023? Did the event meet your expectations?

**Darren Hulst:** Paris Airshow is always a great opportunity for us to connect with customers, suppliers, and other stakeholders in the industry. While it's not necessarily a time for announcing orders, but if our customers want to, it's another opportunity to do that as well. From our perspective, the strength

of the market over the past year since Farnborough Airshow in July 2022, we have taken orders for over 1100 airplanes, reflecting the strength of the market, and we expect this momentum to continue through Paris and beyond.

**Aviation Turkey:** Is there anything else you'd like to add as a message for our readers?

**Darren Hulst:** We are excited about the aviation market's resilience and growth. People continue to travel for personal and business reasons, making the world smaller. We are enthusiastic about our products help our airline customers to do that. I think there is a very bright future ahead, not only for our products but also for the Turkish market, which serves as a crucial crossroads of people and places.

**Aviation Turkey:** Thank you very much ☺





“In 5-10 years, I can see Volocopter operating in around 8 to 10 megacities in multiple continents, including Europe and North America.”

## An Exclusive interview with Dirk Hoke, CEO & Managing Director of Volocopter

**Ayşe Akalin:** First of all, thank you for sparing time for our readers. Can we start our interview by taking a brief summary of your personal journey to the Volocopter after leaving Airbus in 2021 as CEO of Airbus Defense and Space?

**Dirk Hoke:** It was an interesting journey. I really took some time to weigh different options and had many conversations to identify what would really be the best fit for my stage

in life. I had offers to lead multinational companies, but I had always wanted to lead a startup, but the time had never been quite right. When Florian Reuter, my predecessor approached me to take his job, this struck me as a unique opportunity. I've known the sector since 2016 and after thoroughly vetting Volocopter it became clear to me that if anyone makes the race, they will. In the end it was two factors that really pushed me toward Volocopter: the once in a lifetime opportunity to write history, the fact that my family was really supportive, and my adolescent kids thought it was a “cool” thing to do.

**Ayşe Akalin:** How would you best describe Volocopter, which is headquartered at the Bruchsal in Germany, founded in 2011 and employs more than 500 people in Germany and Singapore? Could you please provide some key facts about the company for our readers?

**Dirk Hoke:** Volocopter is the pioneer of urban air mobility. In 2011 the founders proved that electric vertical flight with distributed propulsion is actually possible. From there on, in a rather German fashion, they enlisted the support of various local champions in this area to build the first eVTOL (electrical Vertical takeoff



by Ayşe Akalin

and landing aircraft) which led to a permit to fly crewed in 2016, another historic moment for us. The company gradually grew from 2017 and racked up milestones thereafter, like the first Design Organisation Approval of an eVTOL company, the first eVTOL company to hold Production Organisation Approval, and the first to fly crewed in a city center in Singapore in 2019. The list is endless. We now have

offices in Germany, France, Singapore, employ people from over 60 nationalities and are closer to receiving commercial certification from EASA than any other player in the industry.

**Ayşe Akalın:** At Airbus, you served as CEO of Airbus Defense and Space. To what extent were you able to transfer your experience from Airbus into Volocopter, the pioneer of Urban Air Mobility (UAM), an emerging branch of fully electric aviation and has more than 10 years of electric aircraft development experience?

**Dirk Hoke:** I've been tasked with many difficult feats over my career – many focusing on the reformation, problem solving, and raising profitability of certain sectors. The last few years at Airbus were especially instructive with regards to navigating highly regulated aviation territory and doing so effectively. Frugal and focused leadership on pushing forward the most impactful topics serves most companies well. Digital transformation was another key aspect that I pursued, knowing that all companies must adopt and adapt to make their business operations efficient and effective for customers.

Another similarity is the necessity to work globally in industries. Defense and



Space, just like the UAM sector, will only work if it is approached globally, from a regulatory perspective just as much as a partnership perspective. While local subsidies and ties are instrumental, only a global vision will do justice to the truly grand opportunity eVTOLS offer.

**Ayşe Akalın:** Your position with Volocopter was announced in March 2022, but you have taken up the baton from Florian REUTER as CEO and Managing Director of the Bruchsal-based company as of September 1, 2022. How did you spend this transition period until officially entering your role? Can you elaborate on your vision and goals for Volocopter?

**Dirk Hoke:** I used the transition period to continue my involvement with innovative tech startups globally, get inspired from various conferences, and spend time with my family. Having a month of overlap with Florian was a blessing to really navigate the

company before steering into the exciting waters of final certification.

My vision is to kick-start the electrification of aviation next year and not in the far future, thus enabling cleaner transportation in one of the “most CO2-intensive industries.” We are focusing on the promising partnerships we have built with our first few launch cities and pushing for eye-level collaboration to establish what will be the future of urban air travel.

**Ayşe Akalın:** Can you inform us about Volocopter's current production facilities in Bruchsal and its annual production capacity? In April 2023 a new hangar that would host the company's final assembly line with an airfield to conduct development flight tests as well as quality checks was opened.

**Dirk Hoke:** cccln April 2023 we opened our production facility and hangar with the German transport minister

and other high level German politicians. This event was a symbol to celebrate the completion of our facilities, and the beginning of our future production. Today, the production facility is able to manufacture 50 VoloCity aircraft a year under a one shift operation. As part of the hangar, we inaugurated the first Vertiport in Germany, so we can execute extensive testing right here in Bruchsal.

**Ayşe Akalın:** Volocopter has been developing family of eVTOL aircraft including VoloCity and VoloRegion electric multirotor helicopters in the form of personal air vehicles, designed for air taxi use. And as the pioneer of urban air mobility (UAM), Volocopter flew their Volocopter 2X electric vertical take-off and landing (eVTOL) aircraft at Le Bourget Airfield during the Paris Air Forum in June 2023. Can you describe these three electric eVTOL passenger aircraft for our readers?



**Dirk Hoke:** Certainly. We have two Passenger Aircraft, the VoloCity and VoloRegion. The VoloCity has been designed for fast certification. Volocopter's goal has always been to be a first mover to the market - enter the market quickly, prove that the service works, and learn from early access to the market, customers, and partner. With today's available battery technology, the multicopter design can offer the quietest and most viable city routes, and its product configuration makes it super stable in flight. The VoloCity is what we will enter the market

with next year. As battery technology improves, so will range and payload capacity.

The VoloRegion is an addition to the VoloCity, it can take more passengers with a longer range. With its fixed wing, pusher fans, and rotor design, it features a similarly stable flight, but will go faster and farther beyond the suburbs and offer emission-free regional routes. It will extend the Volocopter ecosystem. Both aircraft will be certified to the highest safety standards known in aviation to date. Which is just as safe as an airliner.

The Volocopter 2X that flew daily at the Paris Air Show is the predecessor of the VoloCity. We built this aircraft before the EASA regulatory baseline, the SC-VTOL, had been finalized. Nonetheless, the 2X is already a two-seater aircraft which features 9 batteries and 18 rotors, like our VoloCity prototype we are currently testing. Over the past five years, the Volocopter 2X has flown globally and delivered test results and data that have continually influenced the improvements we now see on the VoloCity.

**Ayşe Akalın:** Besides the passenger aircraft, Volocopter is also developing VoloDrone, fully electric utility drone capable of carrying an impressive - and unprecedented - payload. Which one has the greatest potential to be the first to bring in revenues?

**Dirk Hoke:** Great question and not so easy to answer. The VoloDrone can be deployed without the EASA certification, rather simply using the Special Operations Risk Assessment (SORA) on the specific routes it is intended to be operated on.





That being said, our team is laser-focused on bringing UAM to life, since this will change the way humans move about cities for good. And that is the historic feat we at Volocopter are aiming for rather than chasing quick revenues.

**Ayşe Akalın:** You also have VololQ and VoloPort, which are important components of the business. Can you elaborate on VololQ and the VoloPort concept and their importance for your eVTOL ecosystem?

**Dirk Hoke:** VololQ and VoloPort were first born



as products of necessity but now we know how valuable it is to have this expertise for the whole of the UAM ecosystem. When first designing an eVTOL and understanding its use cases, Volocopter realized long ago that it needed a full UAM ecosystem to thrive, not just the product. As we were the pioneers in the industry, no one was there to bring these ideas to fruition. We invested a lot of time and expertise to visualize a fully-working environment including infrastructure (VoloPort), various partnerships with local entities in target cities, and a digital infrastructure that will connect to the UAM network (VololQ). Volocopter is not an infrastructure company, but our deep work with vertiport developers, city authorities, and the understanding of how

eVTOLs fly, we created our own VoloPort design handbook. This became a key influencer in the EASA vertiport standards in 2022.

VololQ is a complex and a continuously growing concept. It covers a variety of operational tasks – fleet and customer management, maintenance, booking, communication of aircraft to ATC, other aircraft, and infrastructure, etc. There is no question that any new player in aviation should be focused on digitalization for efficiency and data management capability. The UAM market will grow rapidly once certified and the physical infrastructure prepared. Soon, the existing air traffic control and flight systems will not be able to handle the additional UAM capacity, on both the local and the regional levels. As

a nascent industry, new players like USSPs will need to interface digitally between the traditional ATM and UTM systems, where the VololQ will receive digital signals to our aircraft network.

**Ayşe Akalın:** Considering the fact that the company flew the Volocopter VC1 prototype on 21 October 2011, Volocopter has almost 12 years of electric aircraft development experience and is currently the only eVTOL company on track to achieve certification in 2024 from the European Union Aviation Safety Agency (EASA). When do you expect to secure EASA certification for the VoloCity, VoloRegion eVTOL aircraft and VoloDrone? Have you also applied for the U.S. Federal Aviation



## INTERVIEW



### Administration (FAA) certification?

**Dirk Hoke:** Our target to receive certification is summer of 2024 with the VoloCity. Everyone at Volocopter is focused on the VoloCity right now, and we see the VoloRegion and VoloDrone to be potentially a few years after in certification. 12 years in aviation is actually not a long time in development, especially since we were the first to develop this eVTOL

concept and kickstart an industry. We already have concurrent validations between EASA and three other entities, the FAA, CAAS (Singapore), and JCAB (Japan), so we are prepared to scale our business globally.

**Ayşe Akalin:** What stage are you at with testing? How many flight hours have been accumulated with the VoloCity, VoloRegion eVTOL aircraft and VoloDrone prototypes?

### What is the most challenging aspect of the ongoing testing program?

**Dirk Hoke:** With 5 generations of various multicopter designs (including VoloCity), the VoloDrone, and the VoloRegion prototype, we have recently surpassed the 2,000-flight test mark. We are nearing a milestone EASA audit after which we can focus on pure certification testing

and pushing the envelope up to type certification. Aviation is the most stringently regulated mode of transportation with the highest levels of safety – living up to these standards through redundant systems and structural integrity will always challenge us but never defeat us. We will test however long as we need it in the name of safety.

**Ayşe Akalin:** When do you plan to start delivery of VoloCity and VoloRegion electric multicopter helicopters and electric utility drone VoloDrone to the customers? When will people be able to travel VoloCity and VoloRegion air-taxis?

**Dirk Hoke:** In European cities, we will start commercial services as both manufacturer and air operator. This means we do not have a single focus in delivery to others but also to perform customer-facing services. In Paris and Rome, the public can start to travel with the VoloCity in 2024. In other areas of the world, we will deliver aircraft to Joint Venture companies from 2025, where we will again be part of the operations.

**Ayşe Akalin:** What can you tell us about the target markets you foresee for the VoloCity, VoloRegion and VoloDrone?

**Dirk Hoke:** Volocopter has clear roles for each of our products – the VoloCity is the multicopter air taxi



targeted at short city flights, connecting major transport hubs to bypass ground congestion, the VoloRegion is a fixed wing eVTOL that connects city and suburbs for commuters and travelers, and the VoloDrone as a heavy-duty cargo drone that connects city fringes with large depots outside cities. The VoloCity is already planned to fly in megacities such as Paris, Rome, Singapore, and the NEOM region for this purpose. Once a network of city infrastructure is set up, The VoloRegion can potentially connect city infrastructure to regional airports or hubs. We are looking at many different use cases with the VoloDrone, with the ship to shore use and middle-mile logistics use case looking to be the most promising options in the future.

**Ayşe Akalın:** As VoltAero, how many sales figures do you predict for the VoloCity, VoloRegion and VoloDrone?

**Dirk Hoke:** Volocopter currently has over 400 orders and pre-orders from customers, our partners, and joint venture companies. Of those, 17 are confirmed purchase orders. I'm particularly proud of the orders of the German HEMS operator ADAC Luftrettung. They have purchased two VoloCity aircraft to start research operations for saving lives with VoloCity multicopters as early as next year.



**Ayşe Akalın:** Do you think there is a race to develop electric aircraft? What other projects do you think are close to VoloCity and VoloRegion passenger aircraft in terms of progress in the global eVTOL aircraft market?

**Dirk Hoke:** Yes and no. Yes, in terms of a race to decarbonize the aviation industry. We are small, but we are one of the forerunners to provide one of many solutions to this issue. After receiving type certification and scaling our commercial services, Volocopter and all other players in the electric

aviation industry will make a great impact on the whole. On the other hand, we are not directly racing with other eVTOL market players. We have different aircraft architectures and use cases that can coexist in the future. It is rather a race against time – to change regulations, remove technology limitations, certification, and public acceptance so that the world is ready for us when we are.

**Ayşe Akalın:** Where do you see Volocopter in five or 10 years?

**Dirk Hoke:** In 5-10 years, I can see Volocopter

operating in around 8 to 10 megacities in multiple continents, including Europe and North America. The goal is for Volocopter to be the trusted household name in electric aviation, known as the safest, most reliable, and most efficient alternative to city ground transportation. Also, from a business case point of view, we should be well into the profit zone, being able to give back to the shareholders and customers through a network of eVTOLs and affordable services.

**Ayşe Akalın:** Would you like to add anything in the way of a message for our readers?

**Dirk Hoke:** Volocopter will change mobility as we know, not in another lifetime, but starting next year. Decarbonizing aviation, using the empty space in cities to improve quality of life in the ever-denser populated urban areas. This will be one of the many solutions to build more sustainable living, affordable to anyone who can nowadays afford a taxi 🚗





# IATA ANNUAL GENERAL MEETING

79th AGM and World Air Transport Summit  
Istanbul, Türkiye 4 – 6 June 2023

# IATA

Host airline

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## IATA's Director General Willie WALSH: 'Sustainable Aviation Fuel Costs Are Not a Supply Chain Issue, We Just Don't Have Sufficient Production'

The 79th AGM and World Air Transport Summit, brought some 1500 aviation leaders, Strategic Partners and media to Istanbul, Türkiye, 4-6 June 2023, hosted by Pegasus Airlines and co-hosted by AnadoluJet..

During the gathering, IATA's Director General, Willie WALSH, and Chair of the IATA Board, Mehmet Tevfik NANE, made presentations on the Annual Report of the Air Transport Industry and IATA's Board of

Governors. Following the opening speeches, they answered the questions of the members of the press.

In line with IATA's 2050 'Fly Net Zero' commitment, Airlines around the globe are doing their best to utilize SAF (Sustainable Aviation Fuel) in their specific flights. Responding to our question on whether IATA has any plans to increase SAF production and support Airlines in solving this challenge. IATA's

Director General Willie WALSH emphasized that current SAF prices are not a supply chain issue but due to insufficient production facilities. WALSH pointed out that they focused on ensuring government policies to significantly greater production of SAF and said: "It is not a supply chain issue when it comes to SAF. We just don't have sufficient production facilities producing SAF, and that's why at IATA, we focus on ensuring

government policies are there to incentives the building of these facilities so that we can see significantly greater production of SAF.

So, the reason that SAF price is so much higher than the traditional jet kerosene is because it's been produced in low quantities. We believe that this can be addressed, and it will be addressed. Personally, I believe that there will always be a premium for SAF over traditional

kerosene, where our economies can see a day when SAF becomes cheaper. When that happens, it will be great. We are continuing to call on governments to understand the opportunity that exists for countries to incentivize the production of Sustainable Aviation Fuel. As I said in my presentation, Airlines have bought and used every single drop of SAF produced. In 2022, we estimated that came with an additional cost of 350 million USD. Airlines will buy the product or will want to spend more to use the product produced in lower quantities."

Chair of the IATA Board Mehmet Tefvik NANE also stressed that IATA needs the government's support to increase global SAF production. NANE underlined that Aviation is the only industry stating a target zero emissions, yet they are not getting enough support from governments around the world. "So, we need your support, ladies, and gentlemen, at this point. We need your advocacy for the aviation industry. Why? As we mentioned, we are ready to buy any product available for SAF around the globe. However, we are the victims of manufacturers of SAF. Governments



are not taking the right regulations in communicating with the aviation industry. So, if there is production, we are the only industry... Last year, ICAO Summit announced the 2050 Carbon Emission Zero Target. When we look at the carbon emissions of the industries, land transportation is around five times more than ours. So, we need your support to lobby on behalf of us. This is not fair. Aviation is the only industry stating a target zero emissions, and we are not getting benefits from this. We are becoming victims of it because of the manufacturers and decisions of the governments not focusing on the aviation industry."

### **IATA's SVP Sustainability & Chief Economist Marie Owens THOMSEN: 'The Industry Is Absolutely Phenomenally Talented in Terms of Controlling Costs'**

Speaking at the Economic Outlook – Media Briefing, IATA's Senior Vice President Sustainability & Chief Economist, Marie Owens THOMSEN, talked about the post-pandemic aviation era and stated that while demand is recovering, other challenges are also emerging.

Emphasizing that while fuel prices are heavily impacted by the Russia-Ukraine conflict that started in 2022, THOMSEN shared the following about how the rising fuel prices affected the aviation industry in the recovery period from COVID. "For sure, one of the reasons behind the inflation figures is the fuel prices that are heavily impacted in the course of the war that broke out in February 2022 in Europe. So, our industry is unique in this context because we use more fuel than sort of consumers do. Yes, fuel weighs more in our pricing. Because it represents up to 30 percent of the airline costs, and on top of it, we don't use crude oil.

We use jet fuel, so we have a higher price and a larger weight than normal people. That has always been a challenge for us that impact our margins; no doubt that it still is not necessarily impacting the traffic, as we will see soon.

So now there is some easing in those prices, and that's good news, but the spread remains on the high side between jet and crude. So, the traffic has not been dented by any of these cost solutions, and we expect the full year 2023 traffic to spend 12.2 percent below 2019. Our definitions are revenue passenger kilometers, and it's a measure that takes into account the number of passengers at the distance they travel, both of which are important and very important to measure our traffic. So, we're nearly 2019 levels, and we think that the industry as a whole will exceed 2019 levels next year. So next year is when we expect full recovery from the COVID itself. But we have to also remind ourselves that that doesn't call up the trend that we have in traffic from 2019. If COVID had never happened, we are still well below the trend. So, we are recovering 2019 level, but we're still here compared to a normal non-COVID scenario."

Praising the industry's phenomenal talent in terms of controlling costs,

THOMSEN expressed that air cargo was the real savior of the aviation industry in 2021 by generating most of the revenue during the COVID pandemic. "The industry is absolutely phenomenally talented in terms of controlling costs. So, the expenses are limited to 781 billion USD this year, and revenue, thanks to passengers really wanting to travel, is rising to US\$ 803 billion this year, leaving an industry operating profit of 22 billion. So, of course, when you see the passenger minus 1.1, you might think that's problematic, but then we have to put it again in the context of previous experiences in 2022 to yield 98 percent.

The cargo was our absolute savior in 2021. I'm sure you all are aware, and some of the buoyancy is going out of the cargo because of the growth and trade. But nevertheless, you're expecting US\$142 billion in cargo revenue this year, which is significantly higher than the 100 million USD revenue that the cargo generated for at least 2019. The yielding cargo is likely to drop by almost 29 percent this year, but that has to be analyzed in the context of the absolutely phenomenal years of 2021-2022. This leaves us with a profit of US\$ 900 million, and again I cannot recommend this industry

strongly enough for the absolutely marvelous resilience that we have to be able to go from a loss of about US\$ 140 billion in 2020 to a positive result of nearly US\$ 10 billion in 2023. That's an amazing turnaround in such a short period of time."

### **Chairman of the Turkish Airlines Ahmet BOLAT: 'Turkish Airlines Total Contribution to the Turkish Economy Will Be US\$140 Billion by 2033!'**

Chairman of the Board & Executive Committee of Turkish Airlines, Ahmet BOLAT, made a presentation at the 79th IATA Annual General Meeting (AGM) and World Air Transport Summit held in İstanbul on June 5. In his speech, BOLAT shared information about Turkish Airlines' next 10 years strategy, future fleet size, and planned new destinations.

Last year, Turkish Airlines (THY) announced a record high profit in the history of the company. According to BOLAT, THY's first quarter (2023) results showed that the Türkiye's flag carrier airline going to have similar results this year also. The total revenue increased was 42.7%, compared to the first quarter of

the last year after the pandemic. Also, the net profit increased by 45% compared to last year. In the same period, THY secured US\$230 Million, which was the highest first quarter profit in the company's history.

Stating that Turkish Airlines will increase its fleet size to around 800 aircraft in the next 10 years, Chairman of the Board & Executive Committee of Turkish Airlines, Ahmet BOLAT emphasized that the total contribution of Turkish Airlines to the Turkish economy is expected to be US\$140 Billion by 2033. BOLAT said: "After hearing this little brief about our financial results, I'd like to talk about what we'll do for the next 10 years. According to our next 10 years strategy, the Turkish Airlines fleet size will increase to 800 aircraft, actually 830. We are going to have 830, so what we need to reach around 600 aircraft, we have talked with Airbus and Boeing the main providers to the whole aviation industry. We are basically talking about around 400 MAX and NEO aircraft, 200 wide-bodies, mainly 787s and 350s. We are also looking around 25-30 777X or A350 XWB. These are the combinations we are considering, and we are also talking with the engine providers for this fleet. The



presidential election took a little longer than expected. In fact, we were very close to make a deal with one of the manufacturers but to be fair to the other manufacturer we are going to delay around two months to announce our final decision. We will not rush. We'll have a separate event in İstanbul to announce for such a big order in the next two months.

As Turkish Airlines, our goal is to contribute to the country US\$50 Billion revenue in 2033. With the ecosystems and other contributions, total contribution of Turkish Airlines to the Turkish economy will be US\$140 Billion, which will be equal to the 59th largest economy in the world. If you compare the figure this year, we are doubling the size of Turkish with the contribution almost 2.8 times.”

BOLAT stated they will begin additional promotional activities to increase the number of the number of tourists visiting Türkiye. In this regard, THY will hold several organizations at the US, Japan, Korea, and Singapore. THY will also increase its destinations by adding Detroit and Melbourne before the end of this year, BOLAT stated. “Turkish Airlines is the main body of the Turkish Services Exporters’



Association. Last year, around 50 million guests visited Türkiye. Half of them was carried by Turkish Airlines and this year our expectation is 60 million tourists will come to Türkiye. Immediately after the earthquake, the numbers declined but now we see that there is a big improvement. We had three organizations in the US to double the number of tourists to come to Türkiye. Our goal is 2 million. Last year 1 million Americans visited Türkiye.

Similarly, we will have more promotional activities in Asia. Next month we have an organization in Japan, Korea and also Singapore. Also, we will visit Melbourne because we are planning to fly to the Sydney and Melbourne before the year is over and for that reason, we're going to have first activity in Melbourne probably later in Sydney. So, before the year is over, we will have one

stop flight from Singapore to one of the great cities of Australia. In November this year, we are going to fly to Detroit. This will increase our destinations to 345 and when will fly to Australia the number of countries will increase to 130.”

Chairman of the Board & Executive Committee of Turkish Airlines, Ahmet BOLAT ended his speech stating that Turkish Airlines aims to first airline in the world providing free of charge wireless Internet access to not only domestic but also international routes. BOLAT also shared their year-end targets for 2023. BOLAT said: “We're also going to improve customer experiences. I'm really glad to hear that most of the passengers, most of our guests in this event travelled by Turkish Airlines and most of them were very happy with the services that we provided.

But we're going to further improve the service quality. Very soon we're going to offer free of charge wireless Internet access to all our passengers, both business and economy. We are having discussions with the providers now. So, very soon we will be the first airline in the world providing free of charge wireless Internet access to not only domestic but also international routes. Also, our goal is to make Turkish Airlines one of the top three global airlines providing the best digital experiences.

What is our expectation for end of 2023. The number of aircraft will be 435, Available Seat Kilometer will be US\$235 Billion, which is almost 20 percent higher than 2022. We're going to carry more than 86 million passengers and total revenue will be over US\$19 Billion, and the number of employees will be around 82,000.”



**Pegasus  
CEO Güliz  
Öztürk: “We  
started 2022  
operationally  
and financially  
well-prepared  
and became  
the airline with  
the highest  
operational  
profitability  
in the world  
with our  
performance”**

Pegasus Airlines held a press conference on 6th June 2023 as part of the 79th IATA General Assembly and World Air Transport

Summit, hosted by Pegasus. Presenting the latest developments at Pegasus, plans for 2023 and future goals, Güliz Öztürk, CEO of Pegasus Airlines, said: “We started 2022 operationally and financially well-prepared and became the airline with the highest operational profitability in the world with our performance. In the first quarter of 2023, we maintained our strong performance despite the hardships we experienced in Türkiye. This successful performance also led to an increase in our credit rating.”

Assessing the year 2022, which began

and continued under challenging conditions, Güliz Öztürk, CEO of Pegasus Airlines, said: “2022 was a year in which we achieved significant success thanks to the rapid increase in travel demand, especially in the summer season. In line with our expectation that travel demand may pick up with strong momentum after the easing of restrictions, we kept our operational network and colleagues in all our business units ready to meet the potential demand and increased our capacity to meet the rise in demand.” Öztürk continued: “In 2022, we increased our total number of

guests by 34% to 26.9 million. Compared to the previous year, the number of guests on our international routes increased by 96%, a much better performance than the overall market. We increased our revenue by 139% to 2.45 billion euros. Compared to 2019, the last normal year, our revenues increased by 41%. Compared to 2019, our total ASK capacity increased by 8% and international capacity by 23%. Our EBITDA margin reached 34.1% at the end of the year, the best performance in the world for this metric. Our net profit for the year was 431 million euros.

***"We are pleased with the momentum we have achieved ahead of the peak summer season."***

Commenting on the first months of 2023, Güliz Öztürk said: "We started 2023 under challenging conditions due to global macroeconomic concerns, and subsequently as our country unfortunately experienced a major earthquake disaster. We are also in the midst of a period where global inflationary pressures are causing challenges with planning. As Pegasus Airlines, in the first four months of 2023, we have increased our capacity by 32% and the number of our guests by 31% compared to last year. International passenger numbers were up 43% and we are pleased with this momentum ahead of the peak summer season. We aim to continue to develop and improve our key operational and financial performance results in 2023.

## **100th aircraft in the 100th year of the Turkish Republic**

With the aim of increasing its total capacity by around 20% in 2023, Pegasus Airlines plans to pass the 100 aircraft mark in the 100th

year of the Republic and continue to grow its fleet. Pegasus plans to take delivery of 10 A321neo aircraft in the remainder of 2023, 21 in 2024 and 11 in 2025. Pegasus will continue to focus on digital transformation, sustainability, diversity, equality, and inclusion, and wholeheartedly supports aviation's sustainability goals. Pegasus' pioneering digital transformation efforts, fleet transformation with new generation aircraft, rapidly expanding flight network, investment in technology and people, sustainable aviation initiatives and commitment to diversity, equality and inclusion will be the pillars of its sustainable success.


### ***"Moving towards a sustainable future"***

Emphasizing that Pegasus is taking firm steps towards its environmental and social goals as well as its strong economic performance, Güliz Öztürk said: "We are determined to do our part. In 2021, we set a target of net-zero carbon emissions by 2050 and reinforced this with our emission intensity reduction target for 2030. On the way to net zero, we are building on the momentum created by many initiatives that not only directly reduce

carbon emissions through investments in the new generation fleet and the use of alternative energy sources, but also indirectly contribute to this goal, such as waste management and the transformation of our business processes. The Export Credit Agency-backed aircraft financing model, in which we made emission intensity reduction and gender equality commitments for the financing of 10 of the 17 Airbus A321neo aircraft that joined our fleet last year, was the first of its kind in its category for being the first ever sustainability-linked aircraft-secured term loan. While we continue to work with stakeholders on sustainable aviation fuel (SAF) production, particularly in Türkiye, we are also increasing our experience and impact in the use of SAF. We are moving forward in line with our 2050 and 2030 environmental goals.

Öztürk continued her speech: "We also place great importance to diversity, equality and inclusion. Through our initiative called 'Harmony', we are setting our targets for a more equal and pluralistic future by implementing various projects within the framework of spreading an inclusive culture, with a focus on

gender equality. As of May 2023, 35% of our employees are made up of women. Aligned with IATA's '25 in 2025' targets, we aim to increase the proportion of female pilots, engineers, and technicians, and as well as the ratio of female managers to at least 32%.

Commenting that the 79th IATA General Assembly was a first in terms of environmental impact, Güliz Öztürk said, "In all industry events we attend, we talk about our goals in line with the 2050 net zero target, but we also need actions that show we can achieve our goals. With this in mind, we wanted to set an example by taking action to mitigate the flight-related greenhouse gas emissions of all IATA AGM attendees and cargo flying with Pegasus Airlines through the corresponding amount of sustainable aviation fuel (SAF). With this initiative we want to send two strong messages to our industry and to the public. On the one hand, we are highlighting the importance and impact of effective use of SAF on aviation's net-zero goal. At the same time, this initiative sets an important example for future industry activities in terms of commitment to the Net Zero goal" 





Engin Kolat,  
UPS Country Manager Türkiye;

“Türkiye has a key position in our global organization.”

**✈ Cem Akalın:** Could you tell us about UPS' activities in Türkiye and your global organization? What is the position and importance of Türkiye in the global UPS network?

**Engin Kolat:** UPS is a leading logistics company that offers comprehensive distribution solutions using advanced technologies for worldwide package and cargo transportation for facilitating international trade and more effective management of the business world. As UPS,

we have the capacity to deliver more than 24.7 million packages every day with customer-oriented technological services and more than 540,000 employees, connecting people and businesses in more than 220 countries. This capacity allows us to serve customers in global markets in a fast, safe, and economical way.

We started our activities in Türkiye in 1988 with the aim of bringing export shipments to international markets, now we continue

our operations with more than 2,000 employees and a wide organizational network. We support the development of exports in Türkiye with our international logistics and delivery activities and offer high-quality complementary individual logistics solutions to our customers with our presence in 81 cities.

We are the only logistics company in Türkiye that offers domestic and international cargo services at the same time



by Cem Akalın

and provides air, land, and sea freight solutions as well as warehousing services. We have offices and warehouses in major cities such as İstanbul, İzmir and Ankara.

Türkiye has a key position in our global organization. Türkiye serves as a bridge



between Asia, the Middle East and Europe and is therefore one of the most important centers of regional trade. Since the first day, by expanding our network here and continuing our investments, we have been striving to provide the speed, confidence, and expertise that our customers need to focus on their business and exports.

**Cem Akalın:** Can you tell us about your current fleet structure? Will you have new orders to expand the fleet?

**Engin Kolat:** As UPS, we are continuing our investments to meet the increasing global cargo demand and fulfill our

commitment to higher speed and export performance to our customers. As a result of our fleet expansion efforts, which are an important part of our customer focus strategy, we have ordered eight Boeing 767-300 Freighters last year and we will receive them gradually starting in 2025. When the deliveries are completed, the number of Boeing 767s in our fleet reaches 108 and the total number of aircraft 260. While increasing our efficiency, sustainability and reliability with these new aircraft, we will continue to meet the needs of our customers at the highest standards and have the most modern fleet in the industry.

Thanks to our expanding fleet, we connect our customers to global trade and global markets in a much stronger way. Thus, a package departing from Türkiye can cross continents and reach important trade centers of the world the next day. We are proud of bringing our country's value-added products to global

markets thanks to Türkiye's production strength and solid infrastructure.

**Cem Akalın:** What can you say about Türkiye's export performance and potential? What kind of solutions do you offer to meet the needs of exporters in Türkiye and what are the projects you have developed to increase exports?

**Engin Kolat:** Türkiye is one of the world's leading exporters with diversified export arms. Despite the global economic difficulties caused by the pandemic, Türkiye's export performance signed of resilience. During this period, Türkiye managed to diversify its export markets and increase its export volume in important markets such as the Middle East, North Africa, and the USA. Türkiye has the potential to further increase its export performance by leveraging of its strategic location, well-educated workforce, and reasonable production costs. As UPS, we act with the awareness that Türkiye is a valuable partner for global trade,

and we focus on managing export processes and logistics needs.

We have a strong logistics network that can provide fast delivery. Thanks to our ever-expanding air fleet, we deliver the shipments of exporters in Türkiye to a total of 220 countries and regions through our Cologne Hub. On the other hand, with our road service, we forward shipments from Türkiye to Europe every week for our customers who prioritize cost rather than speed. Thanks to our air freight service, we have taken the strong connection built with the rest of the world one step further with the investments we have made in land operations. In addition to these, we also have services such as UPS Platinum, our special courier service that we have developed to meet urgent needs in international shipping, and UPS Smart, where our customers can manage their shipment processes in a much more technological and integrated way with network points. As UPS, we develop

## INTERVIEW



Engin Kolat

and shape the solutions we offer according to the needs of our customers.

We have implemented the Export Academy program with the Ministry of Commerce in order for SMEs and entrepreneurs to explore their export potential and to foresee the obstacles and solutions they may face in the e-export process. In addition, we have launched the UPS Women Exporter Program to support women to cross borders, overcome difficulties and create new futures by expanding their businesses to world markets. In both projects, together with our stakeholders, we provide trainings to the participants on topics such as accessing new markets, entrepreneurship, supply chain management trainings. We offer opportunities such as creating a supportive network for mentoring, learning and knowledge sharing, e-learning and

workshops on best export practices, trade policies and new market opportunities as well.

**Cem Akalin:** What are the export solutions you offer for SMEs? What kind of studies do you carry out specifically for SMEs?

**Engin Kolat:** For SMEs, it is now essential to be able to open up to the world and engage in e-commerce. With the export solutions we offer for SMEs, we aim to facilitate their access to world markets

and international trade. In this context, we share resources and information to help them and develop technological solutions to facilitate international logistics operations. SMEs demand a simpler, modern and faster process in e-export, and expect support in terms of knowledge and expertise while opening up to new markets. At UPS, we are working to create a safer, sustainable and faster ecosystem for them. If all stakeholders are engaged



in this process, national shares of global e-exports will increase, representing enormous potential for economies.

In partnership with the Ministry of Commerce, we are expanding our Export Academy program to all corners of Türkiye, providing training to SMEs on account management in virtual markets, online payment methods, e-export shipment packaging, digital marketing, customs legislation solutions, while witnessing their successful export stories. UPS will continue to support SMEs and economies with the expertise, knowledge and data we generate.

**Cem Akalin:** Can you tell us about UPS' growth plans for e-exports?

**Engin Kolat:** The share of e-commerce and e-exports in total global trade and exports is growing. We foresee sustainable growth for the Eurozone as e-export continues to be a key driver of progress for all economies in Europe. Businesses in Europe, including Türkiye, aim to move forward in international trade and e-export, and they need a reliable partner to do so. With 116 years of experience, UPS offers a world-class portfolio of services built on time management and tracking, while supporting our partners and enabling them to participate in global trade and reach new markets.



In addition, we offer different shipping options that allow a balance of speed and cost by analyzing the needs of businesses. We also enable consumers to choose alternative delivery locations thanks to our UPS Access Point network, which exceeds 30 thousand in Europe and 50 thousand worldwide. Technology strengthens the services we offer and the transactions we perform, and we carry out technology initiatives in line with the needs of our customers. In this way, we help our customers optimize their shipping and logistics business processes and reduce costs, improve service and increase efficiency. At this point, I would like to underline that we are in a global leader position as UPS.

**✈ Cem Akalın: Can you tell us about the work you have carried out in the region after the earthquake that hit 11 provinces in February? Do you have any ongoing projects?**

**Engin Kolat:** Once again, we extend our sincere condolences to the families and relatives of those who lost their lives. Immediately after the earthquake, we participated in the “Earthquake Assistance Mobilization” initiated by the Ministry of Commerce and brought the humanitarian aid collected for the earthquake zone from Cologne Bonn Airport to Istanbul by air support. We carried the relief materials



to the delivery points determined by the Ministry of Family and Social Policies and AFAD. As part of the WLD – Women's Leadership Development initiative, we delivered the kits we prepared to meet the hygiene needs of women to the earthquake zones on behalf of all female employees of UPS Türkiye.

In the coming period, we aim to carry out projects within the scope of the Export Academy in order to revive exports in the earthquake region, increase their strength and support entrepreneurs in the region.

**✈ Cem Akalın: Like every industry, digitalization is transforming logistics. How is UPS using digitalization to improve its services and operations, and how does this benefit customers?**

**Engin Kolat:** At UPS, we also define ourselves as a technology company. Digitalization has made our daily lives easier and is increasingly demanded by our customers. We

continue to invest in technology to meet this demand and to pioneer digital transformation. In this context, we developed UPS Smart, our integrated logistics management portal. In this context, we developed UPS Smart, our integrated logistics management portal. Thanks to UPS Smart, we are moving many manual operations to the digital platform and reducing error rates. We offer our business partners not only a logistics operation application, but also an integration portal where they can see the entire operation from a single screen. We enable businesses to manage all end-to-end logistics services under a single roof and digitally.

**✈ Cem Akalın: What steps is UPS taking to reduce its carbon footprint and promote sustainable practices in the logistics industry?**

**Engin Kolat:** For UPS, sustainability is more than just a corporate plan. Last year, we set a solid roadmap for our sustainable goals and

how to achieve them. We saw how climate change, air quality and other socioeconomic challenges intersect with our global footprint and our customers in more than 220 countries and territories.

In 2021, we announced a new set of company-wide ESG goals, including a commitment to carbon neutrality for scope 1, 2 and 3 emissions across our global operations by 2050. Our 2035 environmental sustainability goals include halving carbon emissions per package delivered in global small-order operations, ensuring all our facilities are powered by renewable electricity and that 30% of the fuel used in the global air fleet is sustainable aviation fuel.

As an innovation-driven company, we collaborate with public and private partners to develop technological and natural solutions and support high-quality offsets to reduce our carbon footprint while serving our customers. We've



partnered with Arrival to develop vehicle concepts to UPS specifications and have committed to acquire up to 10,000 electric delivery vehicles, and our fleet includes more than 13,000 alternative fuel and advanced technology vehicles. In addition, we have a clear ambition to invest in communities and positively impact the lives of 1 billion people by 2040.

At UPS, we continue to deliver social impact through our commitment to diversity, equity and inclusion (DEI) and employee engagement through volunteerism. The UPS Foundation invests in our global communities with cash grants, in-kind support and skilled volunteers and is also dedicated to promoting volunteerism among its employees through many programs. Planting 50 million trees by 2030 is among our goals to ensure environmental justice and a more sustainable world.

**Cem Akalın:** What kind of investments do you have in Türkiye and globally? Which areas are your focus at UPS during this period?

**Engin Kolat:** At UPS, we continue to invest in helping our partners adapt faster and more efficiently to global export opportunities. Our recent investments in Türkiye include an air cargo hub, new delivery centers, hub centers and technology investments. We are also developing our logistics and transportation solutions to support our expansion in Türkiye. On a global scale, we invest in sustainability and focus on reducing our carbon footprint. In this regard, we are increasing our investments in areas such as alternative fuel use, renewable energy sources, energy efficiency, recycling and waste reduction. We also help our customers optimize their business processes through our investments in technology.

Thanks to our smart logistics solutions and customer-oriented digital services, our customers can track their shipments faster, more efficiently and in an eco-friendly way.

We are committed to contributing to Türkiye's growth and exports. In this context, we continued to invest in the growth of trade, e-commerce and e-export by launching the Izmir Transfer Center in 2016, the Istanbul Airport Center in 2019 and the Istanbul European Transfer Center in 2021.

In 2018, within the scope of the 25-year contract we signed with İGA management, we continue to be a bridge between different markets and exporters by contributing to the growth targets of the country with our investment in Istanbul Airport. Thanks to the presence of Istanbul Airport, we have begun to conduct many of our

operations in Türkiye through this hub, thus promising our customers more speed and export performance. We also continue to facilitate trade for businesses and entrepreneurs with our digital investments.

**Cem Akalın:** What are your projections for air logistics in Türkiye in terms of growth, challenges, and opportunities?

**Engin Kolat:** Türkiye is an important air cargo transit point worldwide because of its geographical location, and air transportation plays an essential role in Türkiye's exports. This offers great potential for air logistics companies. We believe that Türkiye's domestic market potential and global trade volume are also major opportunities for the air logistics sector. However, there are, of course, some challenges for air logistics, as in every field. Türkiye's existing air logistics infrastructure needs to be improved. Some parts of Türkiye have limited access to airports, while others have insufficient capacity. Although the growth potential for the air logistics sector in Türkiye is high, challenges in the sector should also be considered. For the sector to develop, measures such as increasing investments in airports, improving logistics infrastructure and reinforcing the competitiveness of air cargo carriers need to be taken.

# The Inaugural Appearance of ACJ TwoTwenty at EBACE

Airbus Corporate Jets' new ACJ TwoTwenty made its debut at EBACE 2023.

It offers breathtaking amenities with a fuel-saving design, including advanced materials for lower weight. The ACJ TwoTwenty is a new and unique value proposition to business aviation buyers. The innovative solution combines intercontinental range enabling the aircraft to fly up to 5,650 nm/10,500 km (over 12 flight hours), unmatched personal space providing comfort for each passenger with 73m<sup>2</sup>/785 ft<sup>2</sup> of floor space. The ACJ TwoTwenty is the only business jet featuring six wide VIP living areas, of around 12m<sup>2</sup>/130 ft<sup>2</sup> each and is at a price point of a ULR bizjet.

Unique cabin features designed by Sylvain Mariat, the ACJ TwoTwenty offers selected interior configurations and handcrafted furnishing which allows customers to express their creativity among different options suiting their needs and taste. Distinctive features which make the ACJ TwoTwenty unique include all seats capable to recline, double-door for simultaneous crossing, table for eight, electrochromatic windows, five-



Ayşe Akalin, Editor in Chief at the first ever ACJ TwoTwenty in Geneva

star separated cuisine area... Rest in a true US king size bed and refresh in the en-suite bathroom with a rain shower. Feel like at home or the office with best-in-class connectivity to perform online video conferencing or streaming throughout the cabin, including a 55in/4K screen. And never

run out of power thanks to the USB sockets at each seat and the inductive chargers in credenzas and cabinets.

Comlux, an exclusive outfitting partner for the first 15 ACJ TwoTwenty aircrafts, has delivered the world's first ACJ TwoTwenty with a brand new cabin certified by the

European Aviation Safety Agency to FIVE Hotels and Resorts. The VIP cabin was completed in 14 months obtaining a full EASA certification. The aircraft operated by Comlux is now available for charter while based in Dubai, UAE. It is expected that Comlux will deliver its second outfitted aircraft by early 2024.







## Demo Flight for Selected Media Members at Geneva

A select group of media members, including Ayse Akalin, Editor in Chief of Aviation Turkey, had the opportunity to experience a demonstration flight of the Airbus Exclusive Helicopter ACH160. This special event took place at the Archamps airfield near Geneva during EBACE.

The ACH160 Exclusive offers a timeless and sophisticated configuration that provides the highest level of interior

customisation and bespoke craftsmanship for the most discerning customers. Other features include hinged doors, an electric footstep and double glazed windows.

The ACH160 is the premium version of the new H160 helicopter which is certified by EASA and being delivered to private and business customers.

It provides 20% greater volume per passenger compared to previous

generation medium twin helicopters and 35% larger windows than its competitors, resulting in the brightest cabin in its class.

The full ACH helicopter range consists of the ACH125, ACH130, ACH135, ACH145, ACH160 and ACH175 variants of Airbus Helicopters' comprehensive and market-leading family of light and medium models. A range of premium-design aircraft completions, including bespoke designs,

is available for all models.

Airbus Helicopters has signed the first order for four ACH160s with a North American customer at 2018 and delivered the world's first ACH160 to a customer in Brazil at 2022. Airbus Corporate Helicopters has delivered the first example of the ACH160 Exclusive helicopter on March 2023. The helicopter is not only the first ACH160 in Exclusive configuration to be delivered globally but





### Lately Air Corporate of Italy orders 43 Airbus helicopters at EBACE 2023

Italian business aviation operator Air Corporate has placed a firm order for 43 helicopters from Airbus on the concluding day of EBACE 2023.

The helicopters include 40 single-engine helicopters (H125/H130) plus three ACH160s from Airbus Corporate Helicopters in Line configuration with the Lounge package to add to two ACH160s already on order.

The contract is the largest commercial helicopter order booked by Airbus in Italy and will see the helicopters delivered over the coming years for a range of private and business passenger services as well as utility operations.

The latest announcement expands on 28 additional orders from Verona-based Air Corporate in recent years as part of an ongoing fleet expansion. In the past two years alone, Air Corporate has taken delivery of 17 Airbus helicopters, including the first of two twin-engine H135s.



also the first ACH160 of any version to be delivered in Europe. It was accepted by a private customer based in France and entered service immediately.

The company has achieved sales of over 30 ACH160 helicopters, with 10 sold to THC in Saudi Arabia, 3 to Air Corporate in Italy, and the rest to private customers and businesses across the United States, United Kingdom, Brazil, France, India, and several other countries.





# The Future of Airspace Management

by Mehmet Keyvan CEO & Chairman, KEYVAN Aviation

The sky maybe not a limit for humans anymore, but in the future may have some limitations for flight.

Before the first flight on 17 December 1903 by the Wright brothers, only birds enjoy the blue sky. But today there are lots of different vehicles using the same zone for their flight.

Commercial aircraft, Business Aircraft, Helicopters, Military aircraft, and recently eVTOLs and for higher levels spaceships and satellites. The total worldwide fleet size is almost around 30000, some around %15 grounded due to

maintenance or spare parts, but still, there are almost 25,500 aircraft flying in certain frequencies.

21 years ago RVSM was implemented as a means to increase airspace capacity and provide access to more fuel-efficient flight levels. The International Civil Aviation Organization (ICAO) and its member states first mandated the implementation of RVSM in the North Atlantic in March 1997, with other regions around the world to follow. The RVSM program transformed airspace usage above FL290, and was one of the biggest changes to

airspace ever made. The aim was to implement a program to reduce the vertical separation minima between aircraft from 2,000ft to 1,000ft above 29,000ft (FL 290). This Implementation involved training and preparing controllers from 41 countries at the first phase, and pilots and flight planners from 2,300 airlines and operators. The RVSM program went live at 00:01 UTC on 24 January 2002 across the 41 States, with air traffic controllers allocating aircraft to the new flight levels. The six additional flight levels created by RVSM between 29,000 feet and 41,000 raised

airspace capacity by up to 20% and helps to manage the higher traffic in the same airspace. Now we are celebrating the 21st year of RVSM's successful implementation, and feel that more challenges waiting for us in the near future regarding number of flying vehicles.

After almost 20 years from RVSM implementation, Aviation again is on the edge of a new revolution, moving from turboprop and jet engines to electric motors, batteries and energy storages, lightweight composites, digital technologies, pilotless flights, and systems integration. To achieve the





electric motors, powered by batteries or green energy sources. They will be capable of Vertical Take-Off and Landing (VTOL) or Short Take-Off and Landing (STOL) area requirements. First-generation aircraft will plan to be piloted, following the way for increasingly automated and potentially autonomous flight in the near future.

This new generation aircraft design, bridges the huge gap between communities separated by inconvenient public transport or impassable terrain and obstacle elements, facilitating new regional networks

growing and new routes establishment which lead to economic growth.

The new generation aircraft is capable to offer emergency response and different logistics, business models, and solutions by improving the new technologies and having better economic forecasts. It also supports the industry decarbonization plan and cleaner infrastructure.

Because, unlike helicopters, new aircraft seems more safe, clean, and quiet, while offering lots of benefits to busy and populated cities with limited lands to offer aircraft and helicopter operations.

The market expectation is to see eVTOL operations begin over the next 2 years. And followed by Commercial passenger and cargo operations are expected to begin in 2026. This is the major reason behind the investment acceleration in recent years in the eVTOL manufacturers and related industries and solutions. The investment rate reaches a significant increase from USD200 Million in 2018 to almost USD 7 Billion in 2022. with at least US\$6.5 billion of capital flowing to eVTOL aircraft manufacturers and infrastructure just during 2020 and 2021.

We believe that eVTOLs

offer a huge opportunity for the customers and support smooth transportation over the cities and access to difficult-to-reach locations, however, there are challenges to making this solution a reality in the world. Challenges like regulations, infrastructure, and environment.

eVTOLs need to operate within a clear policy and regulatory framework including with the designated airspace, and strict rules. In such an environment, the safety of the vehicle and operations must be the primary concern to be addressed by the authorities, currently, some vehicles undergoing a type certification process by the EASA, aiming at showing compliance of the type to EASA's latest SC-VTOL regulations. These advanced regulations and their complementary Means of Compliance are currently being used by EASA in the certification of several eVTOL aircraft.

While the airframe, engines, and avionics are in the approval process by EASA and other authorities, policymakers in each country are yet to provide overarching guidance on establishing a flying ecosystem. The private sector tries to undertake much of the

work to speed up the delivery and usage, but some areas do require public authorities to set, confirm or clarify the rules.

By taking care of current operations in Civilian, Military, and helicopter, as well as risks, the authorities should update existing policy, legislation, regulations, and frameworks where possible, in order to establish procedures have the benefit of safety, familiarity, and predictability for all operations in a single sky. It reduces ecosystem complexity and is easy to implement between different stakeholders. Regardless of the required policy to operate the eVTOL in the current busy sky, the data coding method and data delivery format would need an extra working group. The EUROCAE already started to implement the first draft for such data exchange methods, aiming to help eVTOL fly safer.

The biggest challenges for policymakers will be announcing the definition of electric aircraft classes and categorization, airspace management over urban areas and at larger volumes of flights, plus effective policies and processes for airspace evolution, security requirements



for operation for both passenger and airframe security, pilot training and licensing arrangements, autonomous piloting frameworks, aerodrome licensing requirement and regulation, and flight Planning permission. imagine seeing all taxis operating in the sky.

Another issue would be having new dedicated aerodromes for eVTOLs. New infrastructure must be developed to accommodate a growing fleet of eVTOLs. Despite analysts projecting tens of thousands of eVTOL deliveries over the next two decades, work on designing and building the required infrastructure need to be faster.

With the launching of eVTOLs, aircraft numbers

in our skies will rapidly grow. Accommodating these aircraft while avoiding disruption to existing aviation, requires a new way of managing airspace. Conventional manned aviation is dependent upon Air Traffic Management services or a pilot's ability to see and avoid other aircraft. Drones, air taxis, and very high-altitude vehicles perform very differently from conventional aviation. In some cases, these vehicles have no onboard pilot to see and avoid other aircraft. The challenge is to reconcile different modes of operation, enabling all aircraft to operate safely and efficiently. There are multiple efforts underway to modernize airspace

management. The primary challenge is to modernize the airspace structure to accommodate today's commercial and military aircraft and helicopter capability and tomorrow's new airspace users.

ATM service providers shall invest in Unified Air Traffic Management capabilities, such as modern surveillance and information exchange systems, to provide safe and secure air traffic control services and solutions to both old and newcomers. Enhanced communications allow air traffic controllers access to all real-time information about operations. This enables the delivery of a common information service to airspace users. Also, communications with

aircraft will be via digital data exchange methods, like Controller Pilot Data Link Communications (CPDLC) or System-Wide Information Exchange (SWIM), and try to reduce the need for voice communications and keep the frequencies for situations such as aircraft emergencies. improving the ADS-B network will support the operation as well.

By using adapted airspace structures and ATM procedures, ATM service providers could apply advanced modelling and simulation to demonstrate the feasibility to support new-generation aircraft operations in the cities while integrating with existing airspace users

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# Plaza Premium Lounge has been Honored with the Prestigious SKYTRAX Awards for the 7th Consecutive Time

## An Exclusive Interview with Ali Bora İşbulan, Deputy CEO of Plaza Premium Group

**Şebnem Akalın:** Thank you for taking your time for this interview. We are aware that Plaza Premium Lounge operates under the umbrella of Plaza Premium Group (PPG), offering a range of services across various segments within the airport environment. While we are familiar with your company's lounge services in Türkiye, can you please elaborate on your other services?

**Ali Bora İşbulan:** Plaza Premium Group, headquartered in Hong Kong, is a leading player serving in the aviation industry. Our primary focus is to enhance the airport experience for passengers, making their time enjoyable, stress-free, and exceptional. In line with this perspective, our primary business area revolves around lounge management, which holds paramount importance in our service offerings. Furthermore, our scope extends to encompass a

diverse range of business lines designed to address various requirements. These include airport hotels, a variety of food and beverage concepts, specialized passenger meet-and-greet services, fast track services, and an extensive travel loyalty program. Presently, the Plaza Premium experience spans across more than 300 service points at over 90 airports across 35 countries globally. Additionally, we extend our offerings to Istanbul Sabiha Gökçen Airport, where we provide lounges, fast-track services, and special passenger meet-and-greet services.

**Şebnem Akalın:** Having received numerous awards since its inception as an independent lounge

in various airports almost 25 years ago, Plaza Premium Lounge currently extends its services to about 35 countries. What innovative approaches did PPG implement to achieve its rapid growth, what level of comfort does it offer to its guests, and how has it received numerous awards and recognition?

**Ali Bora İşbulan:** The pivotal aspect lies in the ability to analyze passenger behavior and comprehend their expectations. Achieving this on a micro level, that is, delving into specifics like children, adults, travel purposes—be it business or leisure—different nationality perceptions, and the subsequent influence on needs and behavior,



by Şebnem Akalın

and thereafter tailoring your service around this data, is bound to yield successful outcomes. At Plaza Premium, our guests are our top priority. We firmly believe that this approach has a direct impact on the satisfaction of our guests. As a result, we have been honored with the prestigious SKYTRAX awards for the 7th consecutive time. This accomplishment fills us with immense honor and pride, serving as a significant source of motivation for our team.



## INTERVIEW

**Şebnem Akalın:** During my recent travel from Sabiha Gökçen Airport, your team provided me with information about your fast-track and lounge services. Can you please share more about these offerings? What specific services do you provide to passengers at Sabiha Gökçen Airport to enhance their travel experience and comfort? Additionally, are there any plans to introduce new services?

**Ali Bora İşbulan:** Today, we welcome our guests at Istanbul Sabiha Gökçen Airport with 1 lounge for domestic flights and 2 lounges for international flights, along with fast-track services and special passenger meet and greet services.

Our lounges offer a wide range of special services, including unlimited food and beverage offerings, free Wi-Fi access, a prayer room, a dedicated children's playroom with special organic food treats, and outdoor terraces. Moreover, during the summer months, we enhance our guests' experience by hosting live music concerts every Friday at specific hours in our domestic lounge, aiming to create delightful memories.

Fast-track services can be considered one of our "star" offerings at the airport. It's a must-have for travelers looking to bypass the often-time-consuming queues, especially during the peak



summer months when traffic is high. For those seeking a swift passage through the terminal gate, passport control, or the 2nd security check for domestic flights, our Always Fast-Track service is the preferred choice. This allows our guests to seamlessly complete their procedures without any stress and enjoy their time

as they prefer.

Through our Always meet and greet services, we mostly cater to our international guests, extending to them the warmth of Turkish hospitality. In this regard, our service plays a pivotal role in shaping the first and last impressions of our foreign visitors. Upon arrival,



our guests are received by our hostess and porter at the aircraft gate, swiftly and comfortably navigating all airport procedures in their company. Similarly, during departure, our service ensures seamless assistance from the terminal gate to the aircraft gate.

Our lounge and fast-track services are available for purchase at our service points. Alternatively, for guests seeking a seamless experience without repeated payments, we offer the ST Pass service package, which includes a digital experience and provides 5 or 10 uses per year.

**Şebnem Akalın:** How many passengers have you hosted at Sabiha Gökçen Airport since you commenced your guest hosting services, and has this figure aligned with your initial targets?

**Ali Bora İşbulan:** As you are aware, we have collectively endured the prolonged effects of the pandemic. The travel industry, in particular, bore the brunt of this situation. Fortunately, this year, with the arrival of the summer months, we have witnessed a global mitigation of this impact. During this summer, we observed a significant upturn in our services, with over 80,000 guests served monthly at Istanbul Sabiha Gökçen Airport, a development that brings us



great satisfaction. We are confident that this growth trend will continue.

**Şebnem Akalın:** In addition to Sabiha Gökçen Airport, are there any upcoming plans for other airports in Türkiye? Can we expect to see Plaza Premium Lounges at additional airports?

**Ali Bora İşbulan:** Istanbul Sabiha Gökçen Airport holds a significant place within our network of operations. Recognizing Istanbul's pivotal role as a global aviation hub, we anticipate further growth and advancement for the city. Hence, even amid challenging times like the pandemic, we confidently invested in Istanbul Sabiha Gökçen Airport. Certainly, we continue to monitor the Turkish market closely. We are eager to capitalize on any potential opportunities that arise. This could entail expanding our portfolio of services at our current airport or incorporating a new airport into our network. We are thoroughly assessing all prospects.

**Şebnem Akalın:** Plaza Premium Group has also achieved rapid growth within the Middle East, a region frequently visited either directly or through transit from Türkiye. Can you elaborate on the strategies and future plans your company has for this specific region?

**Ali Bora İşbulan:** As Plaza



Premium Group, our growth strategy is meticulously devised, considering factors such as passenger traffic flow, growth trends, industry developments, and the contribution to the overall travel experience within our network. Based on these criteria, the Middle East and Africa region emerged as a significant focus for

us. Around 4-5 years ago, we proactively established a Regional Office in Dubai, recognizing the potential of this geography. Presently, we provide our services in various cities including Amman, Addis Ababa, Dubai, Muscat, Dammam, Jeddah, and Riyadh. I am pleased to share that we have exciting news on the

horizon, with new cities set to join this list in the near future.

**Şebnem Akalın:** Plaza Premium Lounge has its own app known as "Smart Traveler." Can you provide details about this application and explain the benefits passengers can enjoy through its usage?



## INTERVIEW



**Ali Bora İşbulan:** Smart Traveler is the loyalty program of the Group that operates on an earn-and-spend points system. Currently, the application boasts over 1 million active users. In addition to accessing Plaza Premium services through the program, users can also benefit from our partners' offerings, particularly those related with travel or lifestyle. Through shopping at our partners, users earn points, which can subsequently be redeemed for marketplace purchases without any fees.

Additionally, I'd like to highlight the Smart Traveler's points conversion feature. Through collaborations with banks and various loyalty programs, we provide the option to convert their points into ST points, thereby enhancing the benefits for end users. The recently established

partnership with HSBC serves as an example of this initiative.

Through ST, we not only cultivate content and loyal customers, but we also gain the ability to collect valuable data that allows us to analyze customer behavioral trends. The insights derived from this data play a key role in shaping our strategic roadmap.

**Şebnem Akalın:** In conclusion, is there any message or insight you would like to convey to the readers of Aviation Turkey?

**Ali Bora İşbulan:** The growth trend in aviation industry will continue rapidly. With this trend, we anticipate the emergence of diverse requirements and expectations in travel experiences. Under the concept of comfortable travel, novel values will surface, with "convenience"

holding key significance. The prevalence of digitalization will become increasingly evident at every stage.

Considering all these factors, we established a technology company within the Plaza Premium Group. We consolidated our digital products, which include Travel Ecosystem (TECO), Lounge Management System (LMS), and our loyalty program Smart Traveler (ST), under this new entity.

I'd like to provide a brief overview of TECO and LMS, which we view as a significant advancement in the industry.

TECO serves as a technological framework that seamlessly connects all airport stakeholders. With just a few clicks, passengers can perform a range of tasks, such as managing parking, requesting valet services upon plane arrival, pre-purchasing fast-

track services, and even placing restaurant orders in advance. Apart from enhancing the passenger experience, this platform will contribute to airports' non-aviation revenue growth and optimize operations, resulting in reduced operational costs through efficient processes.

LMS is a technological infrastructure employed at lounge entrances. It can be effortlessly integrated with our contracted institutions, enabling system communication based on predefined usage conditions and facilitating swift controls during entry procedures. This enables a uniform entrance experience for guests covered by various agreements. Additionally, the system-generated reports facilitate the analysis of travel behavior based on diverse criteria. With the upcoming implementation of the Self Check-in/e-Gate feature, guests will have the ability to directly perform their transactions on their own.

Finally, it's important to highlight that in addition to these innovative initiatives, we also closely monitor and support startups that develop solutions for airport passenger services. Ultimately, we're all collaborating towards a shared objective—to shape the future travel experience. That's why we consider every idea and effort extremely valuable 🌟



## Turkish Airlines Places Order for Ten Additional Airbus A350-900

Turkish Airlines, has announced a new order for 10 additional A350-900 aircraft, taking its total for the type to 40. This latest agreement is in addition to one announced in August for four A350-900s. Turkish Airlines already operates a fleet of 14 A350-900s.

Christian Scherer, Airbus Chief Commercial Officer and Head of Airbus International, said, "We are delighted that Turkish Airlines has decided to further enlarge its fleet with the purchase of 10 more A350-900 aircraft. With greater range capability, passenger capacity and comfort, the A350 is the perfect platform to connect Istanbul to the world. This repeat order demonstrates the confidence for our unique new generation aircraft that offers airlines unbeatable economics and efficiency. We are proud to keep expanding our long-lasting partnership with Turkish Airlines and Türkiye's aviation sector overall."



## Dassault Systèmes Appoints Hakan Kul as Country Manager for Türkiye

Dassault Systèmes announced that Hakan Kul has been appointed as Turkey Country Manager and that Kul will lead the company's operations in Turkey. In his new role, Kul will be responsible for expanding Dassault Systèmes' operations and key collaborations in the country.

With over 23 years of experience in the technology and software industry, Kul has a strong experience in increasing the success of businesses and establishing strategic partnerships with stakeholders.

Dassault Systèmes by placing Hakan Kul as the head of its operations in Turkey aims to strengthen its position in Turkey in key sectors such as aviation, transportation and mobility, and manufacturing, in addition to its diversified activities in the construction, mechanical and civil engineering, health sciences, energy, consumer goods and technology sectors.



# Collins Aerospace's Vision Systems Provide Unprecedented Detail in Real Time on Head-up Displays

paralleled luxury, connectivity and  
ation to elevate the cabin experience



An Exclusive Interview with Mark Ayala - Sr Director, Business & Regional Avionics Sales of Collins Aerospace

**Aviation Turkey:** Dear Mark, Actually, what can you tell us about putting aerospace avionic business units, core capabilities and technologies and how you addressing the future of intelligence aircraft integrated products?

**Mark Ayala:** Yes, so we. Avionics has sort of four core business areas that we focus on so the first is integrated avionics, which is you know the flight decks that you see in the in the front of the Jets with our

Proline Fusion system as well as Pro 21 which is our Legacy system from the past, the second would be a cabin technology so we have our cabin management systems, the venue product line which we have on display out of the booth and then we have sensors which is the air data, ice detection and the like that kind of hang off the side of the aircraft to detect different circumstances and then the 4th would be our head up technologies, head up guidance systems. So, the head up display and all of the associated elements that go into allowing the pilot to see in what's in front of the aircraft, even in poor weather. Enhanced vision is a piece of that as well in terms of where we're going to make aircraft more intelligent. I think we're really refining our position

and integrated avionics in this respect. And you know, I spoke last night about some of the things we're doing to enhance the flight plan transfer from pre-flight into the aircraft avionics. So, today most flight departments use EFP (Emergency Flight Planning) or some sort of a pre-flight planning tool, and one of the pieces of feedback that we get is that it takes too long for that process for them to transfer the pre-flight flight plan into what they're going to use once they take off, and so we're providing them now a method to transfer their flight plan with a couple EFP providers. Bluetooth Wireless technology Using a third-party USB device that's going to plug right into the front of the Pro Line Fusion display, they'll be able to push their flight

plan with a Bluetooth and the Proline Fusion will accept and load that as the new flight plan, which will make that process instantaneous instead of five or 10 minutes with the aircraft engines running on the ramp and make a whole lot more efficient.

**Aviation Turkey:** Could you briefly inform us our readers about your major local and international programs. That you are keeping with the customers, what your markets, can you say something about your markets as well?

**Mark Ayala:** Well, so we're the two big announcements, we have this week in EBACE. One is related to the Iridium (Iridium Certus 700 IRT NX satcom) service launch, which uses our already next technology to provide worldwide coverage for

data in the cabin. And that's good in partnership with Bombardier, they're going to launch that on the Challenger 305, first aircraft to come out later this summer as I understand STS for the rest of the Bombardier in service fleet throughout the remainder of the year. The second one, that we're announcing this week is our selection by Dassault, to be a cabin management provider for the 6X as well as 10X. So that's our cabin management system that provides the passengers, the ability to control lighting, you know, window treatments as well as cabin entertainment in the passenger experience as well.

**Aviation Turkey:** in which platforms, Collins unique are operating...

**Mark Ayala:** Yes, so we have quite a few. We have Dassault which I just mentioned which is primarily cabin focused. We have the Bombardier line where ranging from the 3500 which I just mentioned, which includes the flight deck up to the new Global 7500, so Global 7500 are being delivered with Proline Fusion today, and then we also have the smaller Global as well as the larger Challenger with our integrated avionics as well and then we have quite a few positions on the sensors line with our air data probes and ice detectors. Every OEM uses one of



those in some fashion. Then with Gulfstream, we are very proud of our Head Up Display positions. There are rolling out G600 series.

**Aviation Turkey:** What initiative technology areas will Collins Aerospace focus on near future.

**Mark Ayala:** I think we've seen a trend over the last few years towards the big touch screen displays. We were the industry first introducing that technology and I think that's been very well received by pilots as well as flight departments. So, the larger display and the more the touchscreen technology we can enable the better and so I think you're going to see that continue. Displays will get a little bit bigger. Displays also always get a little bit crisper and a little bit brighter and have a little bit better resolution and so forward. . So that's always a trend and then with head up displays.

I think we're starting to see the Enhanced Vision really catch on take all technology that allows you to see through the weather so to speak. Using infrared cameras and the like, so EVS projected on a head up display allows the operator to descend to lower minimum allows you to get a lot closer to the ground in poor weather, whereas you might have had to divert or go around previously.

**Aviation Turkey:** Can I ask a question about the passenger aircrafts?

**Mark Ayala:** I think probably, Collins made the point last night, that business aviation is sort of a technology incubator for Collins. So, a lot of times we're like touchscreen displays for example, we introduced that in business aviation first and now those are being accepted larger.

**Aviation Turkey:**

**Would you like to add some final comments for our readers?**

**Mark Ayala:** Just that I think you know Collins is constantly trying to get feedback from our pilots and our users and incorporate their feedback into changes and updates and new products. So, we're always trying to be responsive to the feedback from the market constantly reinventing ourselves. So that's always kind of been a hallmark of our company dating back to previous companies that we're now merged with bringing together the power of one Collins Aerospace is really the trick, so we're starting, we're starting just now, really to see Post-Pandemic. Some of those benefits come together.

**Aviation Turkey:** Ok, thank you very much





# Nanotechnology is in the Air!

by Dr. Nokta Çelik, Dr. Kaan Demirel, Dr. Yılmaz Şimşek & Prof. Dr. Fazilet Vardar Sukan

"Nanometer" means one billionth of a meter, and at this scale many materials exhibit new qualities distinct from those observed at the macroscopic scale. Nanotechnology, described as the industrial revolution of our age, encompasses multidisciplinary and interdisciplinary studies and applications utilizing the novel features of nanomaterials and nano-systems.

Nanotechnology can be briefly defined as the capacity to operate at the atomic scale; the science and engineering of manipulating atoms

in macroscale products, electronics and systems. In addition to altering the natural properties of or incorporating new qualities to materials, nanotechnology enables the design and manufacture of purpose-built molecular structures and systems.

Despite their ultra-small size, nanomaterials and nanosystems exhibit effective properties for functions in diverse fields ranging from packaging to electronics, from food to medicine, and from construction materials to energy.

## An Innovative Nanotechnology Center:

**SUNUM Sabancı University Nanotechnology Research and Application Center**

Sabancı University Nanotechnology Research and Application Center (SUNUM) was established by the Republic of Turkey Ministry of Development and the Sabancı Foundation in 2010.

SUNUM is one of the first four National Research Infrastructure centers, housing high-

calibre researchers and infrastructure for multidisciplinary and cross-disciplinary research and development studies accredited by the Ministry of Industry and Technology and funded since 2017.

SUNUM has an infrastructure that can serve various sectors in different disciplines with its competence in the design, synthesis and characterization of nanomaterials and nanostructures, and the design and production of micro-nano systems using nanomaterials and structures. It carries





It exploits synergies and long term strategic partnerships with stakeholders through joint projects, IP and joint units while contributing to the training of high calibre researchers.

SUNUM is a leading national center of excellence with international priorities, accessible to all users. It encourages multiple identity of researchers, balancing academic freedom and focused research while emphasizing cross-disciplinary and multidisciplinary approach, leading to outputs with socio-economic added-value.

### Research and Application areas in SUNUM

The three main research themes of SUNUM are “**Nanomaterial Synthesis & Characterization; Nanostructure Design & Synthesis; Micro / Nano System Design, Integration**”, developing pivot technologies for various sectoral applications. “**Nanomaterials & Nanostructures**” is SUNUM’s horizontal theme where its researchers are focusing on developing new, more efficient sustainable materials for a wide array of industrial sectors.

SUNUM is engaged in highly effective multidisciplinary research programs in advanced materials, nano-bio technology, nano-medicine, micro/nano electronics, nano-optics and renewable energy systems.

### SUNUM in the field of Space and Aviation

SUNUM has specialized experience in the field of space and aviation such as searching cavity resonance of Josephson plasma waves in layered superconducting materials

for THz applications, development of new superconducting qubits for quantum computing application., control of magnetic orientations and electrical resistances in nanoscale structures, RF MEMS switch design and fabrication, uncooled IR microbolometer pixel/array design and fabrication, development of IR/THz absorber thin films, field electron emitter-based micro/nano vacuum diodes and transistors for harsh environment, field electron emitter-based e-gun for miniature X-Ray source.

out research and development studies in application areas ranging from medicine, chemistry, pharmaceuticals, and energy to cosmetics, the automotive sector, agriculture, food, and the environment, within its 26 laboratories with endowed with modern technical infrastructure unique in Turkey.

SUNUM, performing as an effective interface between academia and industry,

provides global nanotechnological solutions to societal challenges, creating socio-economic added-value through commercialisation of research results.





SUNUM focuses on the cold cathode based technology and its applications in various fields, especially, fabrication of cold cathode structures based on nanofabrication techniques. This technology has found numerous applications in the field of space exploration, satellite systems and aviation. Due to their unique characteristics and operational advantages, cold cathode devices have become a popular choice for various space-based applications. Its use in

ion propulsion, electron guns for various systems, spacecraft charging mitigation and avionics systems demonstrates its significance in advancing space exploration, satellite communication, aviation safety, and instrumentation. SUNUM Laboratories provide an extensive variety of laboratory services using the most modern technology and methodologies to get the most accurate and reliable results. SUNUM offers services that can meet the requirements of industries

– from comprehensive laboratory tests to technical and equipment training programs.

In the field of space and aviation, SUNUM offers services for prototyping new materials and conducting their characterizations in the following laboratories:

- *Material Characterization Lab*
- *Advanced Electron Microscopy Lab*
- *Advanced Microscopy Techniques Lab*
- *3D System Design and Fabrication Lab*
- *Tissue & Regenerative Engineering Lab*



- *Anechoic Chamber*
- *Microfluidics & Microthermal Systems Lab*
- *Energy Lab*
- *Quantum Transport & Nanoelectronics Lab*

## Clean Room in SUNUM

Contamination is a critical issue in aviation and space studies. Turkey's leading Clean Room infrastructure with the world's most important standards is located in SUNUM. SUNUM's Clean Room, Class 100-1000 (ISO 5,6) for Micro/Nanofabrication, covers an area of 850 m<sup>2</sup> for micro and nanofabrication processes such as patterning/lithography, thin film deposition/coating, dry/wet etching, test/characterization/packaging.

SUNUM's high-quality clean room consists of state-of-the-art equipment for manufacturing micro/nanoscale systems in a wide-range of applications areas such as communications, health, defense, environmental, and energy sectors. SUNUM also has technical personnel who have expertise in the development and implementation of standard operating procedures, process development, support of external service demands, and training of new users.

SUNUM invites space and aviation people join nanotechnologic journey 🌐

# Our Industry has the Potential to Compete Globally with High Value-Added Products...

by Prof. Dr. A. Hamit Serbest

Chairman of the Executive Board USİMP - University - Industry Collaboration Centers Platform Turkey

The economic growth of our country relies on both technological advancements and our capacity to produce high value-added products and services. Just as observed globally, universities serve as fertile grounds for new knowledge, while industries leverage this knowledge to produce technology. Thus, it is crucial for our industries to establish robust collaborations with universities and foster a culture that translates research results into tangible socio-economic values, all aimed at bolstering our capacity to produce technological products and services.

Technology is fundamentally built upon knowledge, and in the present era, knowledge has emerged as the most invaluable asset. As a result, within the current global paradigm, nations holding economic preeminence are those that generate knowledge, translate it into technology, and employ this technology to manufacture goods and services across various industries, thus generating domestic resources through this intricate process.

Through TÜBİTAK's introduction of the Technology Transfer Offices (TTO) program in 2013, financial support was extended to our universities with the aim of fostering the transfer of knowledge from universities to industries. This initiative sought to encourage the patenting of innovative research findings produced by academicians, provided these findings demonstrated originality and applicability to the industry. Subsequently, the program's trajectory aimed at facilitating the international sale of these patents.

Our established industry should rightfully be granted a preference prior to the patenting and sale of inventions derived from our country's resources and intellectual prowess to developed nations. In line with this objective, as USİMP, we have been organizing the "USİMP National Patent Fair" annually since 2015. This fair serves as a platform for showcasing university-generated inventions, with a special invitation extended to industry stakeholders. Over the last two years,

the event transitioned to an online format due to the pandemic, but since 2022, it has resumed its physical format. This year, we will organize the USİMP National Patent Fair and the University-Industry Collaboration National Congress, previously hosted at the METU Congress and Culture Center in 2022, to be held in Ankara. Taking place on November 22-23, 2023, and hosted by Teknopark Ankara, the event welcomes both industrialists and citizens, and attendance is free of charge. Over the course of two days, the "15th University-Industry Collaboration Congress," centered around the theme "Growing and Developing with Platforms," will run concurrently with the patent exhibition.

University TTOs will showcase their patented inventions at the event, while experts will be available to furnish information to both industrialists and other attendees visiting the booths. For those interested, arrangements for business-to-business (B2B) meetings with industrialists can also be facilitated upon request.

It's important to note that the University-Industry Collaboration Centers Platform (USİMP) is not a fair organization company; you can find more information about us on our website ([www.usimp.org.tr](http://www.usimp.org.tr)). Since our establishment in 2007, USİMP has been exerting efforts under the principle of "taking responsibility considering the prevailing circumstances." The primary goal of this fair is to facilitate the convergence of university inventions and industrialists, thereby enabling their access to novel technologies. Furthermore, it's evident that the fair's atmosphere will create a platform for both parties to foster new collaborations.

For the latest information on the USİMP National Patent Fair and the University-Industry Collaboration National Congress, please visit <https://www.usimppatentfuari.org.tr/>. You can register for the event and view the list of individuals and organizations that have already registered.

Looking forward to meeting you at Teknopark Ankara on November 22-23, 2023!





# An Exclusive Interview with Papadopoulou Ioanna, Director, Communications & Marketing of Athens International Airport

**Şebnem Akalın:** Firstly, thank you for taking the time to join us. Athens International Airport commenced operations 30 years ago. Could you elaborate on the journey that was initiated three decades ago and has led to your current standing?

**Papadopoulou Ioanna:** First of all, let me sincerely thank you for the opportunity to present Athens International Airport, it is a great honor and a pleasure to be part of this prestigious edition!

It all began in March 2001 with a vision of a dedicated team to create a modern, efficient hub, a gateway to Athens and Greece that would reflect the spirit of our country.

Through continuous investments in infrastructure, technology, route development, airline marketing and customer experience, not only have we met, but we have already exceeded the initially - set goals. Today, we stand as a globally renowned and multi-awarded metropolitan airport, connecting our city and our country with more than 150 destinations to/from more than 50

countries, with routes operated by 65 airlines. Our “journey” is marked by resilience, adaptability, innovation, and a commitment to exceptional service.

Having welcomed more than 360 million passengers and over 4 million flights during the almost-23 years of its operations, the airport keeps creating significant value for the national, regional and local economy, our shareholders, all the stakeholders and the wider public, continuously seeking to enhance the connectivity of Athens, as a sustainable, year-round destination.

**Şebnem Akalın:** Athens holds a prominent position as a sought-after destination in Europe for both travelers and airlines alike. I recalled my journey with Turkish Airlines to Athens six years ago and was struck by the accessibility of AIA to the city center, resembling a true city airport. Could you enlighten us on the airport's distinctive attributes, encompassing terminals, dining, and retail areas, as well as other notable amenities?

**Papadopoulou Ioanna:** I am really glad that you enjoyed your experience at our airport! Athens International Airport takes pride on its seamless multimodal connection to the city, while our facilities are designed based on efficiency, comfort and an easy-to-navigate approach. Our main focus is on catering for the passengers' needs and wants and this is why a wide range of surveys are being concluded on a daily basis throughout the year, in order to provide useful insights on the products and services that the passengers need and want.

Our diverse dining and retail options aim at showcasing Greek culture and global brands, focusing on continuously enhancing the passenger journey. The airport's Shopping Centre offers a wide range of choices for passengers and visitors of the airport, featuring more than 150 commercial units across 13,500m<sup>2</sup>, including over 70 brand stores and more than 45 cafes and restaurants. Also, the Reserve & Collect service now allows passengers to order online

from the Duty Free stores and pick them up before their flight.

Additionally, our lounges, our museums, art installations, and cultural events provide a unique and authentic touch. The metropolitan, Athens gateway concept is integral to our identity, enabling travellers to enjoy the best of Athens from the moment they land and to hold close to their hearts and minds the best Athenian memories when they depart.

**Şebnem Akalın:** The present momentum of passenger numbers at your airport is remarkable, drawing significant demand for final destination and transit flights. Is this demand subject to seasonal fluctuations, or does it remain consistent throughout the winter months? Could you share insights into the volume of domestic and international flights during the winter season? Moreover, do you have any forthcoming announcements regarding new airline partnerships inaugurating services from AIA?



## INTERVIEW

**Papadopoulou Ioanna:** If a word could describe Athens International Airport's course throughout the years, this would be "resilience". Even during the years of the Greek macroeconomic crisis or during the Covid-19 pandemic, the harshest of all crises in aviation so far, resilience, adaptability and determination to overcome each crisis was embedded to our DNA and our strategy.

In specific, talking about passenger traffic development, during the first eight months of 2023, the passenger numbers have already demonstrated an increase of 8% approximately versus the respective 2019 levels and a number of spectacular developments have been added to our existing network. Regarding seasonal fluctuations, Athens being mainly a leisure destination, the summer season is indeed the busiest part of the year, with the rest of the year however developing at very good levels. Increasing our airport's connectivity on a year-round basis and adding new airlines,

routes and destinations to the airport's existing network, is the focus of our multi-awarded and highly sophisticated Route Development and Airline Marketing strategy, which features one of the most comprehensive and innovative incentives' schemes globally. It is worth mentioning here, that during the most recent years, Destination Marketing has been one of our strategic priorities and an integral part of our Route Development strategy. Through forging synergies and close cooperation with all aviation and tourism stakeholders, our main aim has been and continues to be, to successfully promote Athens as a city-break, year-round destination.

**Şebnem Akalın:** AIA caters to a diverse range of travelers, including both business and leisure passengers. With the current operational status featuring two active runways, is this configuration sufficient to accommodate your projected passenger capacity?



**Papadopoulou Ioanna:** Our dual-parallel runway configuration, together with our non-coordinated status are two attributes highly acknowledged by the operating carriers, while our operational status is being continuously optimized to handle the existing and projected passenger numbers. We continuously assess our infrastructure needs in order to meet capacity & demand, exploring enhancements that are always aligned with our projections. Our focus remains on maintaining high standards of safety, service, and operational excellence.

**Şebnem Akalın:**

This year, AIA achieved the distinction of being awarded the 'Best Airport Award' for 2023. Could you provide us with an overview of the factors contributing to this recognition? Furthermore, what array of services do you extend to your passengers that sets you apart?

**Papadopoulou Ioanna:** Indeed, we feel deeply honored and humbled and, of course, truly excited with the spectacular first place in the very competitive 25-40 mio pax category during ACI EUROPE Best Airport Awards for 2023! This year our airport received strong praise from the judges for







Athens International Airport

its focus on operational resilience and its bold corporate sustainability and environmental strategy. With an impressive ambition to achieve the Net-Zero goal by 2025 - 25 years ahead of 2050, which is the industry's set target - AIA's innovative "ROUTE 2025" project aims to produce clean energy onsite using photovoltaics to cover 100% of the airport's electricity needs by 2025.

In addition, the efficient and successful handling of the pandemic, as well as the airport's operational resilience were also recognized and praised.

**Şebnem Akalın:**  
Acknowledging the

**aviation industry's focus on sustainability, a zero-carbon footprint, and clean technology as the trajectory for the future, could you elaborate on the measures you have undertaken to mitigate your carbon footprint? Are you equipped to facilitate sustainable aviation fuel for partner airlines? Kindly share your approach in this regard.**

**Papadopoulou Ioanna:** Environmental responsibility has always been a corporate, strategic priority for the Airport Company. Through our leading participation in ACI Europe's global industry initiative, Airport Carbon Accreditation, since 2007,

we managed to significantly reduce our carbon footprint, and since 2016 to offset all remaining emissions to become the first carbon neutral airport in Greece.

Following last April's inauguration of our new 16-megawatt photovoltaic park for self-production/self-consumption of clean energy at the airport, already producing approximately 45% of the electricity the Airport Company's needs on an annual basis, we took more steps towards our most ambitious goal, the "Route 2025" initiative announced in 2019, aiming at the zeroing of our carbon footprint by 2025, and thus, also contributing to the environmental and sustainability footprint of our city.

Furthermore, AIA is engaged in a constant collaborative effort, involving various other stakeholders, to promote sustainable and green air transport. Thus, following an invitation from the European Commission, Athens International Airport is participating along with 22 other partners, airlines,

and local authorities, in an ambitious program, Stargate, with the aim of developing innovations and initiatives for a faster transition to greener air transport. Stargate was selected to implement these plans in the coming years, within the framework of the European Green Deal.

**Şebnem Akalın:**  
Delving into your strategic roadmap for the forthcoming years, what strategic initiatives are in place to steer the trajectory of Athens International Airport? How do you position AIA within the aviation landscape in the next 10 years?

**Papadopoulou Ioanna:** Our strategic roadmap is always evolving around creating value to the national, regional and local economy, our shareholders, all stakeholders and the wider public. In practical terms, operating responsibly and sustainably, enhancing the passenger journey, driving innovation and contributing to the enhancement of our city's connectivity remain always our top priorities 🌱



# First Turkish Aircraft Engineer with a Doctorate Degree

*Dr. Ertuğrul Esat, Head of Technical Control, Kayseri Aircraft Factory*



by Dr. Emir Öngüner  
Freelance Researcher in  
Aviation History

Recently, the history of Turkish aviation has primarily centered around the notable figures of Vecihi Hürkuş and Nuri Demirağ. However, this narrative approach is incomplete and overlooks the critical detail: the technical training and education. During the early days of the Republic of Türkiye, there was a strategic emphasis on education, leading to the opportunity for young citizens to pursue modern education abroad. Students that were selected through rigorous examinations were sent abroad starting in January 1925 and continuing through World War II. Among those who were sent to Europe, Ertuğrul Esat, a scholarship recipient of the Turkish Aeronautical Association (THK), holds significant importance as the first verified individual to achieve a doctorate degree in aircraft engineering. His path crossed with famous scientists Theodore von Karman and Ludwig Prandtl during his time there.



Esat, also known as "Ertogrul Essad" in the records, is documented in the archives of the Technical Universities of Berlin, Braunschweig,

and Aachen, as well as the Max Planck Institute. As the son of a legal advisor and a faculty member, Esat embarked on a journey to Germany

after a short period at the Advanced School of Engineering (predecessor of İTÜ - İstanbul Technical University). His autobiography, penned in 1932, can be found in the archives of Aachen, where he prepared his doctoral dissertation. Esat introduced himself with the following lines:

*"I, Ahmet Ertuğrul Esat, was born in Istanbul on March 17, 1903, as the son of the late university professor Mahmut Esat.<sup>1</sup> After completing elementary school, I attended the 'Menba-ül-irfan' school and later graduated from high school in 1923. During the Allied forces' occupation of Istanbul, I attended the Advanced School of Engineering for a short time before coming to Germany for my university studies. Initially, my high school graduation degree was not recognized for university education, so I attended lectures at Technische Hochschule Braunschweig as an observer. Subsequently, I joined the Institute for Foreigners at the University of Berlin and*

<sup>1</sup>Mahmut Esat Efendi (1855-1918) from Konya - Seydişehir, a legal advisor. He served as undersecretary, minister, and MP during the Ottoman period and as a lecturer at Political Sciences and Law Universities.

passed the external graduation exams according to the Prussian system, which allowed me to enroll in Braunschweig. However, shortly after passing this exam, the German Ministry of Education informed me that my Turkish high school diploma was now recognized.

At Technische Hochschule Braunschweig, I completed the pre-diploma program in April 1926 and the graduate program in March 1927, earning the title of mechanical engineer. During the summer vacation, I took advantage of the time to gain practical knowledge and experience.

After graduating from Braunschweig, I received a scholarship from the Turkish Aeronautical Association and enrolled at Technische Hochschule Berlin-Charlottenburg in the Department of Aircraft Design. My pre-diploma from Braunschweig was recognized, allowing me to start from the fifth semester. In April 1930, I successfully completed my second graduate program in Berlin and was granted the title of aviation civil engineer. To gain practical experience, I worked at the Aerodynamics Research Institute in Göttingen (AVA, from May 12 to November 29, 1930),

and later at Junkers Flugzeugwerke A.G. in Dessau (from December 8, 1930, to January 5, 1932.) During this period, I served to various departments, including fluid mechanics, statics, and construction.

In February 1932, I came to Göttingen to conduct the experimental part of my doctoral dissertation.

Aachen, November 20, 1932 (-signature-)"

His school number in Berlin, where he came as a scholarship student of the Turkish Aeronautical Association, was 39161. He studied at this school between the fall semester of 1927/28 and July 7, 1930<sup>2</sup>. During his time there, he had the privilege of being a student of Wilhelm Hoff and Hermann Föttinger, renowned German professors in the aviation field. In his PhD dissertation titled "Tandem Propellers: Their Most Favorable Arrangement and Comparison with Single Propellers," he provides extensive information about his scientific work and mentions the support he received from Philipp von Depp, Head of the Fluid Mechanics Department at Junkers. Esat discovered that Gustave Eiffel and Karl Schaffran had also conducted experiments on this subject, but they could



Cover of Ertuğrul Esat's doctoral dissertation, Aachen, 1932

not effectively integrate it with theoretical calculations. He believed that no satisfactory research had been conducted worldwide on the efficiency analysis of two propellers placed one behind the other in tandem arrangement. Recognizing the gap in the scientific literature on aircraft propulsion systems, Esat decided to shift the focus of his doctoral dissertation to this area.

The 106-page study takes the propeller examined in Fred Weick's 1929 NACA report No. 306 as its reference.<sup>3</sup> The reason

for this choice is the claim that it may be the most suitable for optimal performance in a tandem arrangement. The first 42 pages of the study delve into topics like velocity distribution of the blades of this propeller, the mutual influence of both propellers, thrust and torque coefficients, and changes in the pitch of the propeller, all analyzed through mathematical calculations. To verify the theoretical findings at experimental environment, tests were conducted at the research center in Göttingen.

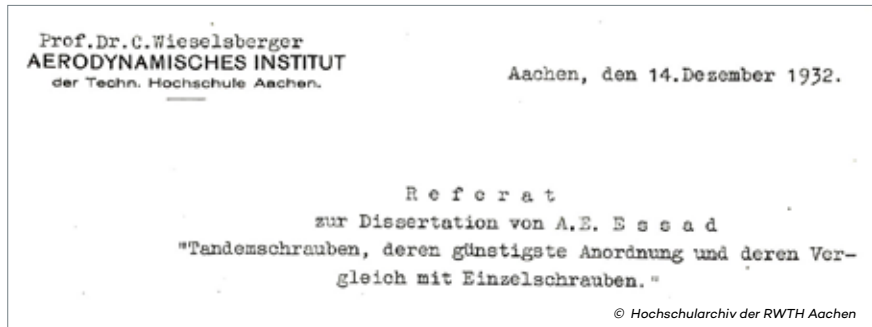
<sup>2</sup>Universitätsarchiv TU Berlin, Matrikel\_Bd VIII\_1923-1928, p. 466.

<sup>3</sup>Weick, F.E., Full-Scale Wind Tunnel Tests of a Series of Metal Propellers on a VE-7 Airplane, 1929, NACA TR-306, 1929, Washington.



The experimental investigations are mainly concerned with measuring the thrust and moment coefficients at three different distances between the two screws and at different pitches of the rear propeller. An important result is that the rear propeller has no influence on the front propeller even at the smallest distance (1/2 propeller diameter). Finally, the velocity field in the jet is examined and compared with the calculated values. The conclusion of Esat's dissertation includes the following statements: Full recovery of the twist loss of the puller propeller is possible if the pusher propeller is dimensioned appropriately. In this case, the tandem arrangement works without twist loss. However, the torques of both propellers are not equal. The tandem's thrust is greatest when the full swirl energy is recovered.

(20 Kasım 1932'de fakülteye tezini teslim edip savunma tarihi için başvuran Esat'ın tez danışmanları Aachen Mühendis Mektebi'ndeki ünlü bilim insanları Carl Wieselsberger ve Ludwig Hopf'tur. İki profesör de 14 Aralık 1932'de tezin yazılı kısmı hakkında değerlendirme raporunu fakülteye gönderir. Prof. Hopf, değerlendirmesinde şu tespitlerde bulunmuştur:)



The preliminary section of Prof. Wieselsberger's doctoral evaluation report.

On November 20, 1932, Esat submitted his dissertation to the faculty and requested a defense date. His dissertation advisors were Carl Wieselsberger and Ludwig Hopf, renowned scientists at Technische Hochschule Aachen. Both professors submitted their evaluation reports on the written part of the dissertation to the faculty on December 14, 1932. In his evaluation, Prof. Hopf made the following observations:

*"...There may be little of direct practical use, but the insight into the conditions of tandem propellers is very useful. The author shows theoretical understanding and experimental skill to an appreciable degree."*

Prof. Wieselsberger concludes the report with the following sentences: <sup>4</sup>

*"...This work demonstrates a good understanding of the fundamentals of propeller theory. The theoretical and experimental results*

*contribute significantly to the clarification of the processes occurring in tandem propellers. I therefore recommend the work for acceptance as a doctoral dissertation."*

On Wednesday, December 21, 1932, Ertuğrul Esat successfully defended himself before a jury chaired over by Otto Blumenthal, a renowned mathematics professor who tragically lost his life in a concentration camp during World War II. As a result of his defense, Esat was granted the prestigious title of "Doctor of Engineering" on February 9, 1933.<sup>5</sup> The Aerodynamics Research Institute in Göttingen, where the experimental work was carried out, and the Kaiser Wilhelm Institute for Flow Research conducted joint studies on the same campus at that time. Another document from Esat's time in Göttingen is found in the archive of the Kaiser Wilhelm Institute, which was later renamed the

Max Planck Institute. In a folder that lists foreign researchers, Esat's name appears as an employee of Junkers, with his residence address mentioned as "Herzogsallee 44, Dessau." This significant detail indicates that Esat's doctoral dissertation was conducted in collaboration with the renowned German aircraft manufacturer, Junkers.<sup>6</sup>

In the July 1, 1935 issue of "Aviation and Sports" magazine, the publication organ of the Turkish Aeronautical Association, an article titled "Our students in Europe: Engineer students trained in Europe by the Turkish Aeronautical Association" features a list of 19 individuals. Among them, Ertuğrul Esat stands out as the only engineer holding a PhD degree. The information regarding Esat's assignment to Kayseri Aircraft Factory as part of his compulsory service in return for the scholarship he received is documented in the

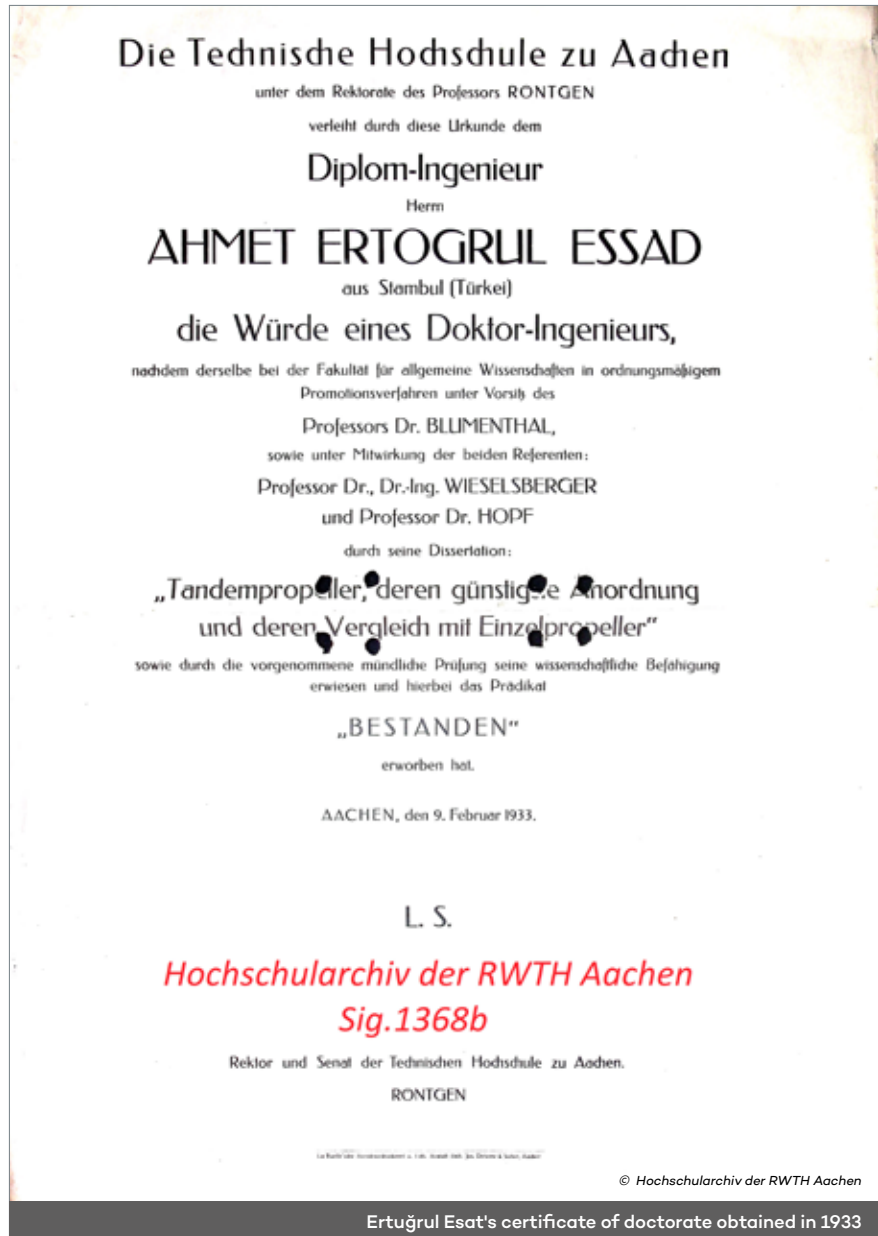
<sup>4</sup>Hochschularchiv der RWTH Aachen, Sig.3028.C14.

<sup>5</sup>Hochschularchiv der RWTH Aachen, Sig.1368b.

<sup>6</sup>Archiv der Max-Planck-Gesellschaft, I\_044\_1313\_01\_0045.

memoirs of Wilhelm Gibałka, one of the Polish engineers employed in Kayseri. Osman Fırat Baş, referring to Gibałka's memoirs published in 1960 in the aviation magazine "Skrzydłata Polska" in his own country, describes the situation as follows<sup>7</sup>

"...The acceptance of each part produced in Kayseri is subject to technical control. Initially, the technical control process progressed smoothly with cooperation between the Poles and the Turkish personnel. Although the Turkish team made occasional evaluation errors due to their unfamiliarity with the P-24s, they generally did not intentionally create difficulties for the Poles. However, this dynamic underwent a radical shift with the appointment of Ertuğrul Esat as the Head of Technical Control. Esat, a Turkish engineer specialized in aerodynamics, who had studied and interned abroad and was married to a German woman, seemed to harbor little fondness for the Poles, as sensed by Gibałka. During inspections, even the most trivial issues would lead to a complete halt of work in the hangar, with long meetings attended by the Technical Manager. Despite Gibałka's warnings about potential delays, his concerns were disregarded, and this even earned him a new adversary..."



Dr. Ertuğrul Esat was a prominent engineer who pursued his education in Germany and had the privilege of working in esteemed research institutes alongside notable figures in the field such as Theodore von Karman and Ludwig Prandtl. As a recipient of

the Turkish Aeronautical Association scholarship and an employee at Kayseri Aircraft Factory, compiling a comprehensive biography of Dr. Esat would necessitate access to relevant documents from both institutions. His biography is expected to provide valuable insights

into the specific areas within the Turkish aviation industry where he applied his knowledge acquired abroad. The fact that Dr. Esat's contributions remain relatively unknown to this day is a poignant reminder of the lack of interest in the history of engineering in Türkiye

<sup>7</sup>Gibałka, W, *Turecka Kariera Myśliwca PZL P-24 (4)*, *Skrzydłata Polska*, 7(449), 1960, p. 11; cited by:Baş, O.F., *Cooperation between Türkiye and Poland in the field of military aviation: Kayseri Aircraft Factory 1936-37*, *Kayseri University Journal of Social Sciences*. Vol 4, No: 1, June 2022, p. 62-75.



## Yiğit Akü Always Strives to Develop Newer & More Environmentally Friendly Solutions to Reduce CO2 Emissions

Energy stands as an indispensable need in our daily lives. Across the globe, the aspects of energy generation, transmission, and storage are undergoing reassessment owing to advancing technology and the implementation of sustainability initiatives. Technological advancements have prompted the exploration of more efficient solutions for energy production, particularly in the realm of electric vehicles. This has underscored the necessity for batteries boasting high energy density. Batteries, including advanced

technology variants, will persist in their pivotal role in the future, much like they do at present, particularly in terms of power management to achieve profitable and sustainable policies. Moreover, digitalization is ushering in new opportunities within the battery industry. In this context, Yiğit Akü is committed to upholding the sustainability of its business models through the cultivation of innovative practices geared towards sustainability. The company promotes innovation and entrepreneurship to surpass current business models and

design the businesses of the future.

Leveraging its lithium battery production facility, Yiğit Akü has amassed 14 years of research and development, along with prototype production experience, spanning both commercialized materials and alternative chemistries since 2009. The outcomes of these R&D endeavors have increased the company's capability to swiftly adapt the process engineering methods within the facility, facilitating the production of batteries in many chemistries under the Distalong brand. Yiğit Akü

delivers services to industry leaders, offering plug-and-play lithium batteries meticulously designed for applications like golf vehicles, AGV/AMR systems, shuttles, forklifts, pallet trucks, and stackers. These lithium batteries boast an extended lifespan compared to traditional traction (lead acid) batteries, while their rapid charging capability ensures maximum vehicle availability during prolonged shifts and working hours.

Lithium batteries are characterized by containing fewer toxic metals compared to other types of batteries, some of which may include





hazardous substances like lead or cadmium. As a result, lithium batteries are generally recognized as non-hazardous waste. Specifically, batteries using lithium iron phosphate are notable for their environmentally friendly composition and play a significant role in reducing carbon emissions. The growing prevalence of electric vehicle manufacturing underscores the importance of highly efficient and low-carbon emission lithium batteries in industrial production. Additionally, these batteries have high recycling features, contributing to minimized harmful gas emissions during their production.

Innovation serves as a strategic instrument for

Yiğit Akü to ensure its future relevance. The company leverages this tool across its entire organizational framework, aiming to enhance its impact. Drawing inspiration from current trends and latest advancements, Yiğit Akü fosters an entrepreneurial spirit and integrates forward-looking innovative business models. The company actively cultivates meaningful partnerships with stakeholders through increased responsible investments that foster sustainability.

Yiğit Akü fosters a greater influx of innovative ideas within the ecosystem and develops products and services that yield environmental and social advantages, all through the perspectives of digitalization, innovation, and entrepreneurship within the industry. Leveraging its skilled workforce, it generates innovative ideas alongside value-added products and services. By implementing measures such as thorough requirements analysis, diligent monitoring of potential project impacts, and timely feedback to relevant stakeholders, it enhances the effectiveness of our stakeholder communication processes.

Aligned with the positive impact of lithium batteries on sustainability, the objective is to shift towards technologies that streamline repetitive tasks



devoid of added value, replacing manual efforts. This transition can elevate employee productivity and satisfaction, reduce risks and costs, and enhance flexibility and ease of processes.

Through the Lithium Battery transformation project, we are playing a significant role in the fight against climate crisis by reducing our carbon emissions. The measures adopted for the green transformation project offer substantial economic benefits, including enhanced productivity, increased competitiveness in the markets, generating new

employment opportunities, and a notable increase in added value.

Yiğit Akü always strives to develop newer and more environmentally friendly solutions to reduce CO2 emissions. Globally, energy generation, transmission, and energy storage are undergoing reevaluation due to the evolution of technology and the adoption of sustainability policies. Batteries, including advanced technology batteries, will maintain their pivotal role in the future, just as they do presently, in terms of power management for achieving

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profitable and sustainable policies. Moreover, digitalization introduces new opportunities to the battery industry.

Adhering to the newly established carbon reduction objective, Yiğit Akü is committed to reaching its goals by achieving a minimum reduction of 55% in net greenhouse gas emissions by 2030 and 100% by 2050. This commitment encompasses efforts within the company as well as collaborations with its stakeholders.

Established by Yiğit Akü in 1988, Kudret Metal A.Ş. stands as one of the country's strong investments. Situated in Kümbet Akpınar Village in Eskişehir, the facility spans a total area of 293,000 m<sup>2</sup>, with 14,000 m<sup>2</sup> indoor area. Boasting an annual lead processing capacity of 50,000 tons, Kudret Metal A.Ş. holds a significant position within the accumulator sector and possesses a well-equipped infrastructure tailored for the recycling of various materials.

The present directive sets a waste collection objective of 45% for portable batteries. This target is slated to increase to 65% by 2025 and further to 70% by 2030. Kudret Metal A.Ş., a member of the Yiğit Akü group of companies, is fully prepared to assume all roles and responsibilities to perform recycling activities



throughout the investment process.

Yiğit Akü has demonstrated its commitment to its carbon-free business model vision through the implementation of the noteworthy Green Transformation Project at İGA.

As part of the Green Transformation Project initiated in January 2023 to combat climate change and reduce carbon emissions at İGA airport, Yiğit Akü has taken significant strides toward sustainability. They have introduced Charge-ION charging stations, featuring a unique Yiğit Akü design patent, primarily for golf buggies, which facilitate passenger access to flight gates. The project involved the assembly, testing, and commissioning of lithium

battery conversions for buggies, carried out by a dedicated team of 24 personnel over a total of 72 hours. In the project's initial phase, 63 buggies were converted to lithium battery power, and 20 Charge-ION charging stations were installed in ten different locations. This conversion, which prioritizes passenger satisfaction by enabling full capacity use even at low charge levels with the correct charging method, has delivered exceptional results. Previously, the vehicles could operate for a maximum of 8 hours on a full charge, but after the conversion, they now average an impressive 60 hours of operational use on a full charge. The transition to lithium batteries has yielded remarkable results. Previously, it took 10 hours to fully charge the vehicles

using lead-acid batteries, but with the lithium battery conversion, they can now reach a full charge in just 2.5 hours at most. Additionally, by opting for high-performance lithium batteries in the conversion, the need to acquire approximately 20 additional vehicles, as originally planned, has been completely eliminated. Furthermore, this conversion has the valuable environmental advantage of preventing the release of toxic gases that were emitted during the charging and use of lead-acid batteries, thereby safeguarding human health. Additionally, the removal of the ventilation system used during lead-acid battery charging has led to reduced energy consumption costs. Since the conversion, an average of 500 lead-acid and gel batteries have been successfully recycled, contributing to our commitment to environmental sustainability.

Following this conversion, the expected lifetime of lithium batteries is anticipated to be around 15 years, depending on the airport's operational demands and usage patterns.

The conversion is projected to yield substantial savings, estimated at approximately \$2.5 million over a 10-year period, achieved through reductions in consumables, service, maintenance, electricity, charging, and operational costs 🌱

# Hitit Expands to Canada with New Partner Air Inuit

Hitit, Türkiye's first and one of the world's largest three airline and travel technology companies, has found a new business partner in Canada, Air Inuit. With a history spanning 45 years, Air Inuit, one of Canada's most established airlines, will continue its operations through an extensive technology partnership with Hitit. Air Inuit has chosen Hitit's "Crane" solutions for its software needs, while Hitit, with its technology, is entering the Canadian market, adding another country to its list of exports.

Hitit, one of the world's largest airline and travel technology companies, has joined forces with Air Inuit, a respected and long-standing airline company in Canada. Air Inuit will make use of Hitit's pioneering and award-winning software solutions.

After integrating Hitit's Crane brand software products into its system, the Canadian airline will continue its operations with Turkish technology. In addition to Passenger Service Systems (PSS), the Canadian airline has also opted for Hitit's Crane solutions for accounting needs, serving nearly 60 destinations in 20 different regions.

## Hitit's new export destination: Canada

Nevra Onursal Karaağaç, Deputy Director responsible for Sales and Marketing at Hitit, expressed their

excitement about serving this unique region known for its rich cultural heritage and natural beauty, saying, "We export technology to many countries across six continents. However, thanks to the collaboration with Air Inuit, we will be in Canadian skies for the first time."

Karaağaç continued, stating their pride in adding a new export route to their service portfolio: "Our teams have started working on the system transition planned to be completed in the second half of 2024. We will be the closest working partner to help our new partner achieve its goals

with services that align with Air Inuit's corporate culture and focus on high passenger satisfaction."

***"Hitit's strong technological airline solutions will take us to new heights."***

Christian Busch, President and CEO of Air Inuit, also spoke about their partnership with Hitit, saying, "Innovation is one of Air Inuit's strongest strengths, and we believe that the compelling technological airline solutions offered by Hitit today will take us on a journey to new heights. We are very pleased with this partnership."





# Boeing's Sustainable Aviation Fuel Forum Addresses Industry Challenges and Opportunities

The Sustainable Aerospace Together Forum, a collaborative initiative led by Boeing and FT Live (Financial Times), recently convened industry stakeholders, policymakers, energy leaders, and financiers in Seattle, Washington. The forum, held on May 17, 2023, provided a critical platform for the aviation sector to engage in a robust discourse on the pressing need for decarbonization and sustainable aviation fuel (SAF) adoption.

## Navigating the Decarbonization Imperative

In an era of rapid technological advancement and mounting pressure to achieve net-zero emissions, the aviation industry faces the daunting task of enhancing efficiency while embracing low-emission solutions. The key question revolves around the industry's ability to strike a balance between safety, profitability, and sustainability. A significant portion of the aviation sector's carbon reduction goals hinges on adopting sustainable aviation fuels (SAFs), which have already proven to be a viable alternative.

SAFs are specially formulated fuels derived from sustainable sources, offering a remarkable reduction in carbon emissions during flight. With the potential to slash emissions by up to 80% over their lifecycle, SAFs are at the forefront of the industry's efforts to meet net-zero commitments by 2050. Currently, SAFs can be blended with conventional jet fuel in ratios of up to 50/50, pushing the boundaries of existing fuel specifications. However, a concerted effort involving aviation, finance, energy, and policy sectors is indispensable to reach the ambitious goal of net zero.

## Boeing's Commitment to SAF Scaling

Boeing, a major player in the aviation industry, is committed to catalyzing the scaling of SAF. The company is actively investing in airplane efficiency, ensuring compatibility with SAF, and procuring SAF for its own operations. Boeing is also actively engaging with global regulators to advocate for intelligent policies, endorsing stringent sustainability

criteria, and collaborating through initiatives like Cascade to expand industry partnerships and policy advocacy, all aiming to increase SAF supply and reduce costs.

Boeing's technical journey toward SAF adoption includes working closely with suppliers to ensure its commercial airplanes will be 100% SAF-compatible by 2030. The company is also actively exploring innovative SAF solutions, such as those derived from waste, biomass, power, and liquid sources. To date, Boeing has already purchased 5.6 million gallons (21.2 million liters) of blended SAF to support its commercial operations.

In support of commercial aviation's path toward net zero carbon emissions, Boeing also released the Boeing Cascade Climate Impact Model for public use during the Sustainable Aerospace Together Forum. Boeing debuted The Boeing Cascade Climate Impact Model (Cascade) at the Farnborough International Airshow in 2022. This web application uses digital technical data pulled from across the world to visualize how introducing various sustainable



by Yeşim Bilginoğlu Yörük

aviation options would impact global emissions. Cascade examines the full life cycle of alternate energy sources for aviation – from production through distribution and use – and quantifies the ability to cut aviation's carbon emissions. Data modeling also measures airplane fleet renewal, operational efficiency, renewable energy sources, future aircraft and market-based measures as pathways to decarbonization.

"We created Cascade to serve as an industry tool that creates a common framework among aviation, energy, finance, and policy," said Boeing Chief Sustainability Officer Chris Raymond. "By putting data first and sharing this model with the public, we are enabling collaboration, feedback, and alignment across industry, government, and others who work together to achieve a more sustainable aerospace future."

Key findings from Cascade's assessments include:

- *The journey to net zero is dependent on the overall energy transition. Whether using sustainable aviation fuel (SAF), hydrogen, or electricity, the energy and emissions associated with the production, distribution, and storage of fuels must be minimized to achieve the most sustainable outcome.*

- *SAF will be the biggest contributor to reducing carbon emissions because it can be used in commercial airplanes flying today – both new and old. Since many jets flying today will be in service into and even beyond the 2040s, it is imperative to abate their emissions with SAF.*

- *While electric- and potentially hydrogen-powered aircraft will emerge in future decades, their contribution to emissions reduction will likely be limited through 2050 due to long timeframes for development and deployment and the magnitude of related infrastructure changes for airports and pipelines.*

- *Renewing fleets with best-in-class, fuel-efficient airplanes will significantly reduce emissions in the coming years.*

"Cascade helps airline operators, industry partners, and policymakers see when, where, and how different fuel sources affect their sustainability goals," said Neil Titchener, Cascade Program Leader. "Our industry has really hard questions ahead of us; we're going to have to make difficult choices. Cascade can be the conversation starter for how each decarbonization pathway can help us reach a more sustainable future."

Boeing also introduced the Cascade User Community, a working group that will provide feedback on new features, functionalities, and application programming interfaces. The founding members of the Community are IATA, NASA, the University of Cambridge's Aviation Impact Accelerator, and the MIT Laboratory for Aviation and the Environment.

"The Cascade User Community will ensure the tool and data sources continue to get feedback and evolve for informed and effective discussions towards achieving net zero emissions by 2050," said Raymond.

## Policy Mechanisms and Capital Mobilization

Policymakers, energy leaders, and financiers hold pivotal roles in pursuing a sustainable aviation economy. Collaboration, innovation, and investment are essential to effectively address the aviation industry's complex challenges and capital-intensive nature. Identifying opportunities for sustainability enhancements, cost reductions, and operational efficiencies through strategic partnerships and collaboration is essential. Yet, substantial barriers exist on the path to scaling and commercializing alternative aviation fuels, necessitating innovative solutions and digital tools for decision-making and development.

Governments worldwide are beginning to enact policy mechanisms aimed at scaling SAF production. In Europe, a blending mandate with corresponding offtake requirements has been introduced, while the United States is offering incentives such as the Blenders Tax Credit for SAF producers. These measures are attracting the necessary capital to expand production capacities and make SAF more readily available.

Additionally, Boeing ecoDemonstrator team partnered with NASA on emissions testing to gain a deeper understanding of SAF and contrails, further advancing the knowledge base surrounding sustainable aviation solutions.

## A Holistic Approach to Net Zero

While SAFs play a pivotal role in decarbonizing commercial aviation, Boeing maintains a comprehensive approach that explores the safety and viability of other renewable energy carriers and technologies for aircraft. With an unwavering commitment to the net-zero goal by 2050, Boeing emphasizes collaboration and innovation as the cornerstones of the industry's path toward a sustainable future.

In conclusion, the Sustainable Aerospace Together Forum, hosted by Boeing and FT Live, underscores the industry's collective resolve to confront the challenges and opportunities presented by sustainable aviation fuel. Through continued collaboration and concerted efforts across multiple sectors, the aviation industry will navigate the complex terrain of decarbonization while ensuring a prosperous and sustainable future.



## Emirates Premium Economy Shines in First Year of Full Service with over 160,000 Customers Trading up to Experience the Cabin's Quiet Luxury

After setting new industry benchmarks in Premium Economy travel, Emirates is celebrating a banner first year of full-service operations with the highly popular cabin class. Over 160,000 customers have traded up to fly in Emirates Premium Economy since it was introduced in August 2022, with strong demand momentum forecasted in the coming months. The airline is providing travellers more opportunities to experience its highly-

acclaimed Premium Economy product which is currently available on flights to 11 cities, with the list growing to 13 cities by the end of the year, as more retrofitted aircraft with refreshed cabins roll into scheduled service.

Since Emirates debuted its Premium Economy Class, customer response has been overwhelmingly positive with demand exceeding expectations and bookings growing month on month, demonstrating its

appeal to a broad range of traveller segments who want to try out its understated luxury and meticulously elevated experience at great value. Nearly half of customers flying in Emirates Premium Economy are solo travellers venturing off for holidays, while couples and families constitute the other half. More than 60% of customers who booked to fly in Premium Economy in the last year were also loyal Emirates Skywards members and

regular customers of the airline.

Emirates currently flies its A380s with the latest Premium Economy cabins to London Heathrow, Sydney, Melbourne, Auckland, Christchurch, Singapore, Los Angeles, New York JFK, Houston, San Francisco and Dubai, with flights regularly registering full seat loads in Premium Economy. The airline plans to make Premium Economy available to customers flying to/from Mumbai



and Bengaluru from 29 October, and additional cities will be announced soon. Emirates currently operates 20 aircraft fitted with Premium Economy, 14 of which were retrofitted in-house by the Emirates Engineering team in Dubai over the course of the last nine months.

Since August 2022, the airline has operated close to 4,500 flights with Premium Economy, traversing more than 36 million kilometres around the globe. On those flights, over 192,000 meals from its carefully curated menu which include the finest ingredients were served to customers who enjoyed regionally inspired, generously portioned dishes. Unique touches include indulgent desserts garnished with edible gold leaf, among other signature offerings. Premium Economy menus are updated every month to ensure a diversity of flavours and dishes, especially for well-travelled customers. Over 126,000 pieces of chocolates were served to round off meals for Premium Economy customers. Emirates also served 6,700 kilograms of mixed nuts and 8,650 litres of complimentary fresh lemon and mint juices in Premium Economy. The airline's robust beverage selection in Premium Economy includes a global exclusive for Emirates



customers, Australian sparkling wine, Chandon Vintage Brut 2016,

alongside a choice of a unique white and red wine.

The airline's philosophy to

constantly innovate and redefine service excellence through the introduction of Premium Economy has earned it numerous top placings and accolades in the cabin category at the 2023 Skytrax Awards, Business Traveller awards, Airline Ratings Excellence Awards, and 2022 Business Traveller Middle East awards.

The Premium Economy roll-out is a core component of the airline's multi-billion-dollar retrofit programme which will see the interior upgrade on 67 Emirates A380 cabins, as well as 53 Boeing 777 cabins. By the end of the programme, over 4,000 Premium Economy seats will be installed, along with over 700 First Class suites and 5,000 Business Class seats refurbished with the latest interiors.



## Second Gulfstream G800 Takes Flight

Gulfstream Aerospace Corp. announced the first flight of its second Gulfstream G800 flight test aircraft. The aircraft flew out of Gulfstream's Savannah headquarters on a 30/70 blend of sustainable aviation fuel and marks a new phase in the G800's path to certification and customer deliveries.

The G800 took off on Saturday, July 15, at 9:27 a.m., flew for 3 hours and 26 minutes and reached a top speed of Mach 0.935.

"Gulfstream's flight test team continues to make advanced strides forward for our company," said Mark Burns, president, Gulfstream. "The G800 will bring the industry's longest range to customers around the world, and we are seeing strong demand for this capability alongside the cabin comfort and quality Gulfstream is known for."

The second G800 flight test aircraft is dedicated to environmental control systems, avionics and flight controls and builds on the more than 1,600 test points already accomplished by the first G800 flight test article.

"Thanks to the design philosophy behind our next-generation fleet, the G800 is also benefiting from the excellent progress we continue to make in the Gulfstream G700 flight test program," Burns said. "This commonality helps us enhance efficiency and reliability for our customers, who are already seeing firsthand how well these aircraft perform."

The G800 can fly 8,000 nautical miles/14,816 kilometers at Mach 0.85 and 7,000 nm/12,964 km at Mach 0.90 and features class-leading fuel-efficiency with its combination of the Gulfstream-designed advanced high-speed wing and winglet and all-new, high-thrust Rolls-Royce Pearl 700 engines. Designed to seat up to 19 passengers, the G800 offers up to four living areas or three living areas with a crew compartment.



## Maeve Aerospace Adopts Siemens Xcelerator for Development of Next Generation All-Electric, Zero Emissions Commuter Aircraft

Siemens Digital Industries Software announced Maeve Aerospace B.V. has adopted the Siemens Xcelerator portfolio of industry software and services to aid in the development of Maeve O1 – its next-generation, zero emissions all-electric passenger aircraft. Unveiled at the Paris Air Show, Maeve O1 enables 44+ passengers to travel in a range of 250nmi with zero emissions.

Maeve's mission is to transform regional air mobility, guided by a commitment to mitigate environmental impact. With its all-new electric aircraft design, Maeve is aiming to significantly decrease emissions and energy consumption while improving the aviation industry's economic and social prosperity, building a sustainable future that contributes to a healthier planet for future generations.

Through their shared passion and dedication, Maeve's growing team of aviation experts is pioneering the path towards zero emission flights. Recently, Maeve Aerospace received a global interest from investors including a conditional investment of €17.5 million co-investment from the European Innovation Council and over €2.5 million in Dutch grants.

"Maeve's experienced aviation team having the Siemens Xcelerator portfolio of design and simulation tools in their toolbox has given us the perfect opportunity to take our electric aircraft design to the next level," said Joost Dieben, Co-Founder and Chief Commercial Officer, Maeve Aerospace. "Maeve is empowered with these tools and Siemens' expertise has helped us to get one step closer to zero-emission aviation. Together with Siemens, we've been able to accelerate our development process to be able to start flying before 2030."



## Pegasus Airlines Places Order for 36 New A321neo Aircraft

Pegasus Airlines has signed an agreement with Airbus for 36 new A321neo aircraft, in line with its strategy to modernise its fleet, focusing on reducing emissions while saving fuel and unit costs. Pegasus had previously modified its Airbus order signed in 2012, to include a total of 114 new aircraft with amendments made in 2017, 2021, and 2022. The delivery of the 36 newly ordered aircraft, in addition to its existing orders, is planned to be completed by the end of 2029. As a result, the original order for 100 A320/321neo family aircraft, placed by Pegasus with Airbus in 2012, has now been extended to a total of 150 aircraft. Among these, 108 are A321neos.

In her statement on the agreement, Güliz Öztürk, CEO of Pegasus Airlines,

said: "We embarked on our journey with the belief that everyone has the right to fly and today, we remain equally dedicated to operational efficiency, financial performance, and sustainability for our industry and the world. With these goals in mind, we continue to work diligently and determinedly towards our strategy of fleet modernisation, focusing on fuel and unit cost savings, and emission reductions. Through our recent agreement with Airbus, by adding 36 new 239-seater A321neo aircraft, which are the most efficient aircraft type in their class, we will both expand and modernise our fleet."

"With an average age of 4.5 years, we operate the youngest fleet in Türkiye" Noting that Pegasus

have the youngest fleet in Türkiye and one of the youngest fleets among low-cost carriers globally with an average age of 4.5 years, Güliz Öztürk said: "This efficiency makes a significant contribution to reducing fuel consumption and emissions. In addition, we are actively pursuing many more initiatives on the road to net zero. In addition to our fleet transformation with new generation aircraft, we are moving towards this goal through our operational efficiency efforts, increasing our use of sustainable aviation fuel and our focus on alternative energy sources. In 2023 and beyond, our main goal will be to maintain and advance our leading position in the industry with our innovative, rational, principled, and responsible approach."

A321neos have higher seat capacity, lower fuel consumption and reduced carbon emissions per seat-kilometre.

The A321neo, the latest addition to the Airbus medium range single-aisle family, is the largest of the group. Due to its 239-seat configuration, it offers significant advantages in terms of capacity utilisation, while also providing significant benefits in terms of fuel consumption due to the technical specifications of the new generation LEAP-1A engines. Airbus states that the new-generation Neo aircraft is 15-20% more efficient in terms of fuel consumption and carbon emissions than its predecessors. The operational performance of the A320/321neo series aircraft validates this efficiency.





## Eve Air Mobility and Embraer Announce First eVTOL Production Location in Brazil

Eve Air Mobility (“Eve”) and Embraer announced today that the first electric vertical take-off and landing aircraft (eVTOL) production facility will be located in the city of Taubaté, in the state of São Paulo, Brazil. Subject to the final authorities’ approval, the manufacturing plant will be situated on a designated portion of land within Embraer’s existing unit in the city that will be expanded.

The site benefits from a strategic logistical location, offering easy access via two highways and close proximity to a railroad. Another significant advantage is the region’s proximity to Embraer’s headquarters in São José dos Campos and Eve’s engineering and human resources team, which will facilitate the development and sustainability of new production processes,

enhancing Eve’s agility and competitiveness.

“When we began our search for a manufacturing location to build our eVTOL, we wanted to reimagine how the aircraft could be built using the latest technology and manufacturing processes, coupled with other aspects such as supply chain and logistics,” said Andre Stein, co-CEO of Eve. “Our objective is to offer safe and reliable products and services to the market and be highly competitive in manufacturing efficiency. The team was tasked with the opportunity to design an optimized assembly line that prioritizes safety, quality, efficiency, productivity and sustainability.”

“This decision is aligned with our growth strategy plan, which is driven by innovation and sustainability,” said Francisco Gomes Neto, President & CEO at

Embraer. “We believe in the enormous potential of the global Urban Air Mobility market, and we reinforce our commitment to Eve as one of the major players in this industry.”

In May 2022, Eve announced a partnership with Porsche Consulting to define Eve’s eVTOL global manufacturing, supply chain and logistics macro strategy. The two companies have since worked together to research advanced manufacturing and innovation concepts and used their combined aeronautical and automotive expertise to design a concept of industrialization for eVTOL aircraft based on high safety, quality, efficiency and customer focus.

“We are focused on achieving the highest quality standards in eVTOL manufacturing through increased knowledge and consideration of an

innovative approach. Following extensive research on advanced manufacturing and innovation concepts for over a year, we are now prepared to establish our initial factory for eVTOL production. With confidence in our capabilities, we are equipped to efficiently scale the production volume sustainably to meet the demands of a growing market,” added Alice Altissimo, Vice President of Program Management and Operation at Eve.

Eve continues to progress in developing its eVTOL. The company also focuses on creating a comprehensive portfolio of agnostic solutions, including a unique Urban Air Traffic Management (Urban ATM) software to optimize and scale Urban Air Mobility operations worldwide.

# MHS Aviation Group Adds Third Falcon to Support its Growing Charter Operations

MHS Aviation, a leading German aircraft management company, is proud to add a new Falcon 2000LXS aircraft from Dassault Aviation. It joins two highly capable 2000LX aircraft already available for charter by the company, which operates 13 aircraft in all. The acquisition of the new aircraft by MHS shareholders reflects a major commitment to expanding service to its clients.

With this new order, MHS Aviation strengthens its position as a key Falcon operator and key charter provider of the Falcon 2000LX/LXS aircraft family. The 10-passenger 2000-series aircraft is a mainstay of charter operations around the world and is Dassault's most popular business jet with nearly 700 delivered.

Steffen Fries, CEO of MHS Aviation Group, lauded the performance, comfort, reliability, and economy of

the 2000-series aircraft. "These are perhaps the ideal charter jets, considering their flexibility to carry large teams and to do so economically over short and long distances. And into and out of short fields, when necessary. Our clients love them." The company's 2000-series aircraft fly up to 1,000 hours each per year—a high utilization rate for a business jet.

MHS selected the 2000LXS based on its key features: the most comfortable cabin in its category and range of



4,000NM / 7,400 KM. MHS Aviation conducts frequent trans-Atlantic flights with the aircraft and considers it to provide the most price efficient service on these long routes. It has the lowest direct operating cost in its class, second-

to-none operational performance, combined with high reliability, which allows high utilization. Falcons are known to be able to operate from short runways, often those close to city centers, while cruising comfortably at high speeds en route.





## Riyadh Air has Signed a Deal for 90 GEnx-1B Engines to Power its New Fleet



Following its recent agreement for a wide-body order of 39 Boeing 787-9 Dreamliner aircraft, Riyadh Air has signed a deal for 90 GEnx-1B engines to power its new fleet. The order also includes spare engines and a TrueChoice services agreement.

The agreement was signed at the Paris Air Show, at the Riyadh Air chalet where the airline revealed its new livery to the world following a flyby last week over Riyadh's iconic city skyline.

Tony Douglas, Chief Executive Officer of Riyadh Air said, "The agreement highlights our determination to significantly extend Saudi Arabia's connectivity with the world and fulfil our goal of connecting to 100 destinations by 2030. We look forward to fostering strong strategic relationships within the wider aviation ecosystem as we continue to shape our new digitally native airline to become one of the most sustainable and guest-centric carriers in the world."

Russell Stokes, President & CEO, Commercial Engines and Services

for GE Aerospace said, "We are proud to partner with Riyadh Air to support its new fleet and fulfil its vision for long international routes. GE Aerospace's GEnx engine is a perfect fit for the 787 fleet with its combination of power and the ability to reduce fuel consumption and CO2 emissions."

Riyadh Air was unveiled to the world in March, and this marks the first engine partnership with GE Aerospace for its new fleet of Boeing 787-9 Dreamliners. The first deliveries are scheduled for early 2025 as Riyadh Air aims to operate one of the newest and most sustainable airline fleets in the world.

The GEnx engine family has nearly 50 million flight hours since entry into service in 2011 and is the fastest-selling, high-thrust engine in GE history with nearly 3,000 engines in service and on backlog, including spares.

The GEnx-1B powers two out of every three 787 aircraft in service. The engine also provides a 1.4% fuel burn savings for the

typical 787 mission compared to its competition, equating to \$300,000 per airplane per year in fuel savings. The added fuel savings enables more than 2 million fewer pounds of CO2 per aircraft annually.

Representing a giant step forward in propulsion technology, GEnx uses lightweight, durable materials and advanced design processes to reduce weight, improve performance, and lower maintenance, making it the best engine choice for long-haul flights.

Riyadh Air, the disruptive new airline from Saudi Arabia will fly to more than 100 destinations, and reach 100 million visitors, by 2030 making Riyadh City a hub for global travel and encouraging visits to the Kingdom for business and leisure. The airline will bring a new level of attention to detail to guest experience and has technology that will raise the bar for the industry. The brand identity captures the heritage of the Kingdom whilst being modern and forward thinking with the tagline 'The Future Takes Flight'.





## Safran Expands its Partnership with AURA AERO for the Hybrid- Electric Propulsion of the ERA Aircraft

Safran Helicopter Engines and AURA AERO have signed a Memorandum of Understanding (MOU) for the motorization project of the ERA aircraft (Electric Regional Aircraft). Both partners will cooperate to evaluate solutions for the integration of the turbo-generators developed by Safran in line with the needs defined for ERA, the 19-seater regional aircraft. This MOU follows a first agreement, signed in April 2022 between AURA AERO and Safran Electrical & Power, which

included the electric equipment of this aircraft.

Destined for disruptive propulsive architectures such as AURA AERO's ERA, a turbo-generator is composed of a gaz turbine combined with one or several electric generators that regulate pressure, as well as an innovative system regulating the power and the electric tension. Safran Helicopter Engines, building on the global expertise of Safran in the field of electric equipment, starting with

that of Safran Electrical & Power, has already bench-tested several types of turbo-generators, at different levels of power.

"Becoming a partner of AURA AERO is great news for Safran Helicopter Engines. We share the same will to decarbonize air transport and we are ready to bring them our expertise in hybrid-electric propulsion, developed through many tests", says Florent Chauvancy, Head of Sales at Safran Helicopter

Engines.

Jérémy Caussade, CEO of AURA AERO, adds: "We are very excited for Safran Helicopters to join us by bringing their expertise and their relevant eye to this project."

Developed by AURA AERO, ERA is a 19-seater regional aircraft with hybrid-electric propulsion, that should perform its maiden flight in 2026, targeting entry into service in 2028. Letters of Intent have already been signed for several hundred aircraft.

## SIA Group Announced Historical Net Profit

SIA Group reported a net profit of \$734 million in the first quarter of fiscal 2023/24, which recorded the highest first quarter meetings amid strong demand for air travel during the mid-year school

holidays and the start of the summer travel season.

The group's passenger capacity increased 32.4% year-on-year as restrictions on international air travel were eased globally. SIA

and Scoot carried 8.4 million passengers this quarter, up 65.5% year-on-year, with strong demand across all routes and market segments. Passenger factor and occupancy capacities

improved in all markets with annual traffic growth, outpacing capacity information. The group had a record 88.9% passenger load factor in the first quarter, with SIA 88.1% and Scoot 91.7%.



## Dubai Airshow 2023 to Showcase the Innovations Carving a Sustainable Future

As the aerospace and defence industries continue on their pathways to net zero, this year's Dubai Airshow will be the ultimate platform for players from across these industries to convene, bringing the latest solutions that will help advance these crucial economic sectors towards a sustainable future.

The industries have taken bold steps towards decarbonisation, with innovation accelerating at an exponential rate. As Dubai Airshow leads up to the United Nation's annual global climate change conference, COP28, which is also taking place in Dubai towards the end of the

year, industry stakeholders will take the opportunity to showcase their latest solutions towards net zero emissions, discuss collaborations and gain new insights.

The aviation industry contributes approximately 2% to 3% of all global CO<sub>2</sub> emissions but with a constant increase in passenger demand, this could rise to 25% to 30% by 2050 if no actions are taken, according to a new report by Frost & Sullivan titled 'Sustainable Technologies in Aviation', which raises the urgency on manufacturers, airlines and airport operators to undertake sustainability initiatives.

Additionally, global production capacity for Sustainable Aviation Fuel (SAF) needs to exceed 30 billion litres by 2030 and 450 billion litres by 2050<sup>[1]</sup> for airlines to be able to achieve net zero targets. In 2020, SAF production was just 450 million litres, according to IATA, which is less than 0.05% of the global demand of jet fuel.

However, several initiatives are already underway in the Middle East region. Recently, Abu Dhabi Future Energy Company (Masdar) signed an agreement with Airbus, to support the development and growth of the global SAF market. The agreement will also see

the entities collaborate on Green Hydrogen, and Direct Air Capture technologies. Meanwhile, Qatar Airways signed a deal with Shell to source 3,000 metric tonnes of neat SAF at Amsterdam Schiphol airport, making it the first carrier in the Middle East and Africa to procure a large SAF amount in Europe, beyond government SAF mandates.

Globally, Shell Aviation has signed several other agreements to provide airlines including JetBlue and Japan Airlines (JAL) with SAF, and Air bp, the specialised aviation division of multinational oil and gas company BP, has announced the first sale of SAF from its





Castellon refinery in Spain, marking another important milestone as it works towards making SAF more available.

Earlier this year, Emirates successfully completed a demonstration flight powered by 100% SAF on a Boeing 777-300ER, as part of its plans to help the global aviation industry meet carbon emission targets. The airline has also earmarked \$200 million to fund R&D on advanced fuel technologies that can reduce commercial aviation's environmental impact.

Exhibitors at the Airshow are set to showcase their latest technologies and innovations that will help

advance the industry towards achieving global net zero emissions targets.

Mikail Houari, President, Africa and Middle East at Airbus, commented: "At Airbus, we continue to demonstrate our unwavering commitment to leading the decarbonisation journey in the aerospace industry through our pioneering role in developing disruptive technologies. Whether this is through hydrogen-powered commercial aircraft or other sustainable solutions when it comes to engines and fuels, our goals are a testament to the potential for revolutionising the way we fly. We are relentlessly pursuing ambitions of building a more sustainable future for aviation as we seek to make our commercial fleet capable of flying with 100% SAF by 2030."

Separately, Honeywell has launched a new technology called UOP eFinishing™ that produces lower-carbon aviation fuel from green hydrogen and carbon dioxide captured from industry.

Mohammed Mohaisen, president and CEO, Honeywell Middle East and North Africa, commented; "Sustainable Aviation Fuel represents a ready now opportunity to drive the sustainable growth of the aviation industry, yet it is still barely tapped into. Technologies that can harness readily abundant CO<sub>2</sub> to produce SAF are transformational in terms of

how we fuel aircraft, and will play an important role in the long-term decarbonization of the sector. That is why we recently added UOP eFinishing™ to our existing Ecofining and ethanol-to-jet fuel portfolio, offering customers multiple pathways to SAF production through proven technology, and helping them meet the rapidly growing demand for renewable fuels today."

Dubai Airshow has confirmed that sustainability is an increasingly important topic of discussion and area of focus for its stakeholders at the upcoming edition, taking place from 13-17 November 2023 at Dubai World Central (DWC), Dubai Airshow Site under the theme of 'The Future of the Aerospace Industry'.

The 18th edition of Dubai Airshow will build on the momentum across the industry with special sustainability-themed conference tracks. Boeing will be the host sponsor for the Aerospace 2050 stage, which will include a two-day Sustainability conference that is set to return bigger than ever given the topic's ever-growing importance. Industry experts will discuss steps on creating a more sustainable aerospace ecosystem, covering some of the most pressing sustainable challenges and opportunities.

Kuljit Ghata-Aura, President, Boeing Middle East, Türkiye and Africa, commented: "Boeing is very proud to be

participating in the Dubai Airshow again, and we are especially pleased to be the sponsor of the Aerospace 2050 conference. The aviation industry is committed to achieving net zero carbon emissions by 2050, and Boeing is actively developing airplanes and technologies which will enable our airline customers to meet these goals. We look forward to sharing our experience and engaging with our industry peers and partners at Dubai Airshow 2023."

The sustainability conference, with sponsors including Air BP, Shell Aviation and Asia-Pacific Space Cooperation Organization (APSCO), will focus on key topics for 2023 including hydrogen-powered aviation, SAF, COP28 predictions, efficient engines, streaming operations, hybrid and electric aircraft. It will also address how to prepare for carbon neutral passengers of the future and creating a low-carbon aviation energy hub through global leadership.

With the industry and the region setting a firm agenda for reducing emissions, visitors will be able to hear new insights and discussions on the sustainability trends shaping the industry's future, as well as have the opportunity to explore a plethora of new technologies, innovations and initiatives.





## Air bp Scoops Australian Aviation's Sustainability Initiative of the Year Award

Air bp, the international aviation fuel products and service supplier, has won Australian Aviation's 2023 Sustainability Initiative of the Year Award. Air bp was recognised for introducing the first all-electric hazardous goods vehicle and refueller approved for use in Australia. The all-electric refueller has been in operation at Brisbane Airport since August 2022 and represents one small step in Air bp's sustainability journey as it continues to work collaboratively across the aviation industry to help accelerate decarbonisation.

The Australian Aviation Awards recognise outstanding professionals and businesses from across the Australian aviation industry. The Sustainability Award recognises the business that has most effectively demonstrated sustainable practice through products, services and culture, all while strengthening Australia's aviation capabilities, its advancement and its recovery.

Justin Walker, Air bp's technical sales director, accepted the award on behalf of Air bp Australia on August 31 and said: "I am honoured to accept this award on behalf of Air bp and would like to thank Australian Aviation for selecting us. I am delighted that Air bp has been recognised for this project as we work towards our aim of becoming the energy partner of choice for sustainable aviation. We collaborated with SEA Electric and Refuel International in the EV refueller's design and construction and so it represents a celebration of Australian engineering and manufacturing of zero fuel and zero- tail pipe emission technology."

## Thai Airways International Starts its IGA Istanbul Airport Flights

Thailand's flag carrier national airline, Thai Airways International Public Company Limited (THAI), will start its IGA Istanbul Airport flights on December 1, 2023. IGA Istanbul Airport CEO Kadri Samsunlu underlined their goal of increasing the number of airline companies operating at the airport to 100 in the 100th anniversary of the Republic of Turkey, and stated that THAI is the 94th airline company hosted at IGA Istanbul Airport.

THAI, the national airline company based at Bangkok Suvarnabhumi International Airport, is scheduled to start direct flights between Bangkok and IGA Istanbul Airport as of December 1, 2023. The airline's Bangkok-Istanbul flights are expected to be made with A350-900 model aircraft with a capacity of 321 seats. Flight TG900, which will depart from Bangkok daily at 23.45, will land in Istanbul at 06.05 the next day. Flight TG901, which will depart from Istanbul at 16.30 on the same day, will arrive in Bangkok at 05.35.

THAI will further strengthen its wide and uninterrupted flight network connecting Europe to Asia Pacific, North Asia, Southeast Asia and Australia via its hub in Bangkok, thanks to its IGA Istanbul Airport flights. THAI, which started its operations in 1960, is among the founding members of the Frankfurt-based global airline alliance Star Alliance.

IGA Istanbul Airport CEO Kadri Samsunlu stated that THAI is the 94th airline company hosted at IGA Istanbul Airport and underlined their goal of reaching 100 airlines in the 100th anniversary of the Republic of Turkey,



# Çelebi Platinum, Offers Personalized Travel Experience at Rize Airport

Çelebi Aviation, Turkey's first privately-owned ground handling services company, launched the specialized Çelebi Platinum service at Rize Airport. Çelebi Platinum, which is available in Budapest, Hungary and at a total of 20 airports in Turkey, aims to offer passengers a more enjoyable travel experience by providing high quality service and comfort.

With 65 years of experience, Çelebi Aviation, which currently operates in 3 continents, 5 countries and more than 40 stations, is expanding its operations to meet the global service needs of its customers at more locations. With Çelebi Platinum, which was launched 15 years ago, the company today offers a range of premium services that make passengers feel more comfortable and privileged at all stations in Turkey and at Budapest Airport. Çelebi Platinum, providing services such as welcome and farewell, transfer of apron and transit passengers, baggage handling, VIP passes, vehicle supply and priority check-in,



meets the needs of its guests both in the air and on the ground at Rize Airport, enabling them to enjoy a smooth and pleasant travel experience.

Our specially trained staff provides the Çelebi Platinum service, which offers exclusive privileges, to make all passengers' travel unique and truly memorable. The Porter (baggage handling) service highlights Çelebi Aviation's expertise in ground handling services by delivering support and assistance

at every corner of the airport facilities. Çelebi Platinum's solutions that instantly meet passenger needs, from helicopter and private jet rentals to hotel and restaurant bookings, from 24/7 customer support to lounge services, represent Çelebi Aviation's commitment to offer exclusivity in every field.

Osman Yılmaz, Managing Director Ground Handling and Cargo at Çelebi Aviation, said: "We are excited to launch Çelebi Platinum service at Rize Airport. We aim

to redefine the travel experience by providing high-level personalized service. We believe that each guest deserves a smooth and delightful travel and our Çelebi Platinum service is tailored to ensure this."

Launched at Rize Airport in July, Çelebi Platinum continues to raise travel standards at the airports it operates. In addition to travel agencies and hotel customers, all passengers, regardless of flight class, can benefit from Çelebi Platinum service.



## Turkish Airlines Chosen as Europe's Best for the Eighth Time by Skytrax

Flag carrier Turkish Airlines, has been honored for the eighth time with the Best Airline in Europe award, along with accolades for Best Business Class Catering, Best Economy Class Catering, Best Airline in Southern Europe and Best Economy Class Seat in Europe at the World Airline Awards.

The awards were announced at an event held at the Paris Air and Space Museum, known as the "Oscars of the Aviation Industry."

The 2022-2023 Skytrax awards survey, available in English, French, Spanish, Russian, Japanese, and Chinese, received and evaluated more than 20.23 million responses representing citizens from over 100 countries. The winners were selected from among 325 airlines.

Commenting on the awards, Turkish Airlines CEO Bilal Ekşi, said, "We are proud to have

been honored as the Best Airline in Europe for the eighth time. This award strengthens our flag carrier's leading position in the sector. As Turkish Airlines family, we are also glad to be recognized as the Best Airline in Southern Europe by Skytrax. We will continue to improve our service standards and provide the best possible experience for our guests."

Edward Plaisted, CEO of Skytrax, stated, "It has been a fantastic year for Turkish Airlines in terms of awards, and winning the top prize as the Best Airline in Europe for the eighth time is a remarkable achievement. The awards for Best Business Class Catering and Best Economy Class Catering underline why Turkish Airlines is so popular among customers, and the airline's catering partner, Turkish DO&CO, should take great pride in this success."

## Turkish Cargo Ranks the 3rd Among the Global Air Cargo Carriers

Turkish Cargo, the air cargo brand of Turkish Airlines, ranked the 3rd among the leading air cargo carriers in the world, in the wake of a prospering performance in May. The successful brand, which was ranked 5th on the same period of last year according to the monthly data published by the International Air Transport Association, became one of the top 3 air cargo carriers by overtaking the top brands in America, Europe and the Far East during May of 2023.

According to the FTK (Freight Tonne Kilometers), derived by multiplying the cargo tonnage, carried by air, with the kilometers covered, Turkish Cargo increased its cargo tonnage by 17% compared to previous month while raising its market share to 5.4% from 4.7% by increasing it 0.8 points as compared to April.

In respect of the achievement of Turkish Cargo, Turkish Airlines Chairman of the Board and the Executive Committee, Prof. Dr. Ahmet Bolat, said; "We, as Turkish Cargo, are continuing to reinforce our leading position in the industry in line with our target to grow and improve continuously. We recognize these achievements as a commitment to our future targets and work harder to add further value to the air cargo industry." As one of the fastest growing air cargo brands in the world, Turkish Cargo continues to raise the bar for success higher day by day and combines its wide range of services and operational capabilities with the unique geographical advantages of its hub in Türkiye.









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