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VOLUME 4 - ISSUE 14 - YEAR 2022

# AVIATION TURKEY



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REGIME IN LIGHT  
OF THE CHICAGO  
CONVENTION**

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EFFICIENT  
AERODYNAMICS,  
ADVANCED  
MATERIALS, NEW  
ENGINES, SIMPLE AND  
ROBUST SYSTEMS**

**Falcon 8X Experience;  
FROM ISTANBUL TO  
PARIS**

**AN EXCLUSIVE INTERVIEW  
WITH SAMİ OZDEMİR,  
REGIONAL GENERAL  
MANAGER OF GE  
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# AVIATION TURKEY

VOLUME 3 - YEAR 2022 - ISSUE 14  
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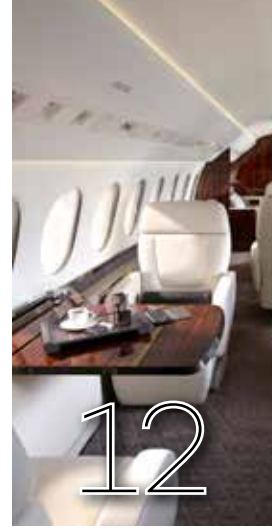
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A220 Offers  
Efficient  
Aerodynamics,  
Advanced  
Materials, New  
Engines, Simple  
and Robust  
Systems

WE EXPECT  
NARROWBODY  
TO LEAD AND  
RECOVER IN  
EARLY 2023,  
FOLLOWED BY  
WIDEBODY IN  
EARLY 2024



FALCON 8X  
EXPERIENCE  
FROM ISTANBUL  
TO PARIS



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# New Horizons, New Airline Business Models

IATA Wings of Change Europe kicks off, hosted by Pegasus Airlines in Istanbul. One of the topics that has been underlined is Air Transport is Critical to European Success and Competitiveness.

According to the survey of 500 European business leaders, 89% of them believed that being close to an airport with global connections gives them a competitive advantage. 84% could not imagine doing business without access to air transport networks. 82% thought their business could not survive without connectivity to global supply chains via air transport.

Some 61% of business leaders surveyed rely on aviation for global connectivity—either exclusively (35%) or in combination with intra-Europe travel (26%). The remainder (39%) primarily use intra-European networks. Reflecting this, 55% reported that their offices are purposefully located within an hour of a major hub airport.

With 93% reporting positive feelings towards Europe's air transport network, a wide range of views on areas for improvement was expressed. When

asked to rank their priorities, the following areas were included: Reducing costs (42%), Improving/upgrading airport infrastructure (37%), Improving links between public transport and air networks (35%), Reducing delays (35%) and Decarbonization (33%).

Business leaders surveyed showed confidence in aviation's decarbonization efforts. 86% were aware of aviation's commitment to achieve net zero carbon emissions by 2050. 74% were confident that air transport would meet its commitment to achieve net zero carbon emissions by 2050. 85% said their businesses use air transport confidently while managing their carbon footprint.

The business leaders surveyed believe that the priority for aviation's decarbonization should be on finding technical solutions for people to continue to fly sustainably. Using sustainable aviation fuels (SAF) was the most-preferred solution (40%) followed by hydrogen (25%).

Within the conclusion of the European business leaders' demands and statements about

airline transportation, another topic which has been highlighted in the event was how airline business models have evolved in order to address and meet the differentiated demand for air transportation in Europe.

The report by IATA on how airline business models meet demand provides some key findings. The number of European-registered LCCs has nearly doubled since 2004 to 35, while the number of network carriers has fallen slightly over the same period (from 149 to 131). The number of passengers on origin-destination non-stop flights within Europe carried by LCCs reached 407.3 million in 2019, compared to 222.5 million for network carriers. Within Europe, the number of origin-to-destination flight itineraries served by network carriers is 2-4 times greater than the flight itineraries served by LCCs before the pandemic.

The importance of transit passengers in facilitating services to remote or small urban centers is crucial. The network carriers' hub-and-spoke model enables a large network of connections even

where demand is relatively low. This ensures that even the smallest or most remote European city with a runway can be fully connected to a multitude of destinations across the world, enabling trade and economic development.

The number of passengers flying connecting itineraries within Europe carried by LCCs was less than 9 million in 2019 compared to around 46 million carried by network carriers. While 72% of intra-European passenger demand





flies on routes that have competition between LCCs and network carriers, that demand comprises only 6% of total intra-European itineraries. Some 79% of European itineraries are flown by network carriers only (compared to 15% which are LCCs-only). Thus, LCCs tend to compete with network carriers on the most popular routes, but network carriers perform a vital function providing connectivity to less popular European destinations, which is only viable because of the hub-and-spoke model.

The analysis shows that the two main airline business models often focus on distinct market segments in Europe. While LCCs carry more passengers on intra-European O-D journeys, this fact alone does not convey the full complexity of the market or the contribution of network carriers to intra-European connectivity. Network carriers remain the largest providers of air transport connectivity both within Europe and in the inter-continental markets. In addition, the extent to which the pandemic has affected

O-D demand shows different patterns in the network carriers' and LCCs' networks, given their specific focus on international and domestic markets on the highest-demand itineraries, respectively – and also their respective exposure to the impact stemming from travel restrictions which were and still are imposed mostly on international travel. The analysis reveals that one size does not fit all in the European airline industry. Indeed, network carriers and LCCs complement each other significantly

more than they are substitutes. Policies should not favor any particular business model but instead promote the coexistence of different business models. This would encourage healthy competition and the maximization of consumer choice and welfare.

Enjoy the issue...📖

**Ayşe Akalın**  
Editor in Chief



# A220 Offers Efficient Aerodynamics, Advanced Materials, New Engines, Simple and Robust Systems

Special Interview on Commercial Aviation & Turkish Market with Simon Ward, Head of Airbus Türkiye



## INTERVIEW

**Ayşe Akalin:** Could you give us an overview of 2022's first 9 months from Airbus point of view? Could you provide a capsule summary of your major activities carried out during the first 9 months of 2022 in Türkiye?

**Simon Ward:** Following the pandemic the aviation sector began to recover quite quickly, during the summer, air-travel demand came back faster and stronger than many expected in spite of high fuel prices, and Turkey is one of the countries where we see one of the fastest recoveries. Turkey achieved the same passenger numbers as before the pandemic very quickly and even exceeded them.

Airbus delivered a solid nine-month performance. We continue to see a lot of demand for our latest-generation fuel-efficient aircraft. And we continue to deliver even if we have to operate in a complex environment: the supply chain remains fragile, resulting from the cumulative impact of COVID, the war in Ukraine, energy-supply issues, constraints, labour markets and others.

We have many ongoing projects with Turkey at the moment and Turkey has been an integral part of Airbus supply chain for nearly 40 years. Every commercial Airbus aircraft flying today, including the



Ayşe Akalin, Editor in Chief of Aviation Turkey Magazine and Simon Ward, Head of Airbus Türkiye

brand new A220, has Turkish parts on them.

**Ayşe Akalin:** Within the scope of İstanbul Airshow on October 7, 2022 the Sustainable Aviation Fuel (SAF) Declaration Signing Ceremony was held with the participation of Turkish Airlines, Rolls-Royce and Airbus. By signing the Global SAF Declaration with Rolls-Royce and Airbus, Turkish Airlines (THY) pledged to increase its usage of sustainable aviation fuels (SAF) to the highest. Can you elaborate on the goals of SAF Declaration and importance of THY's joining Rolls-Royce, Airbus and Safran in the Global SAF (Sustainable Aviation Fuel) Declaration as one of the co-signatories? What kind of cooperation will be established among the companies under this signature?

**Simon Ward:** At Airbus, we recognise the value that our business brings to people, to economies, and to nations, but we are equally conscious of our obligations to society, to the environment, and to future generations.

Airbus, is committed to leading the decarbonisation of the aerospace sector in cooperation with partners across the entire aviation sector. We will contribute to achieving the long-term climate goal of net-zero carbon emissions by 2050 and SAF is considered as a key decarbonisation pillar to meet the net zero emissions goal by 2050.

Since 2008, Airbus has been actively involved in the approval process for new fuel pathways, demonstration projects and flights, through partnerships and political advocacy of SAF.

Currently, all Airbus commercial aircraft are capable of flying with up to 50 percent SAF blend mixed with kerosene (equivalent JET A1).

The need to increase the use of sustainable aviation fuel is there. This is what we are doing with our SAF Declaration partnerships. Ensuring a sustainable future for our industry has become the priority for Airbus, especially as we move out of the challenges we have faced during the pandemic.

Airlines and aircraft manufacturers cannot solve zero emissions alone but can and should act as the catalysts for the profound changes that are required. There is a need to have a viable industrial system to produce and commercialise these energy sources near to key hubs around the world.

Airbus supports the EU Green deal objectives of carbon neutrality in 2050 and a 55 per cent reduction in CO<sub>2</sub> by 2030. The Destination 2050 initiative provides a clear roadmap for aviation to achieve these objectives.

Airbus will be a strategic actor in the implementation of this roadmap and we welcome those initiatives and policies which encourage efficiency and innovation, including ambitious targets to scale sustainable aviation fuels.

**✈️ Ayşe Akalın: What can you tell us about Airbus' participation at İstanbul Airshow (AIREX) 2022? Did the Fair meet your expectations?**

Turkey is a strategic partner for Airbus. Today, Türkiye is the 3rd largest Airbus market in Europe with more than 300 Airbus passenger and freighter aircraft in service with nine operators. In total, more than 120 aircraft remain in the order book to be delivered to airlines in Türkiye.

We are always looking for new opportunities to increase our partnership with Türkiye and what better opportunity to meet our partners during İstanbul Airshow and show our products and share information with possible partners.

We were very pleased to see the attention for our products during the airshow. We received many



visitors to the A220. We would also especially like to give our thanks to the Minister of Transport and Infrastructure Mr. Adil Karaosmanoglu for visiting the A220 and our booth.

**✈️ Ayşe Akalın: At İstanbul Airshow (AIREX), Airbus displayed A220-300 regional jet of airBaltic, which starting from April 2023, will carry its passengers to and from İstanbul as a part of its 2023 schedule. As demand for air travel soars following the pandemic, Turkish Airlines (THY) is said to be on course to order 30 regional aircraft to support its continued growth. THY was previously interested in both the Airbus A220 and Embraer 175-E2 regional jets. Can you elaborate on the technical features of A220-300 single aisle aircraft and why**

**and on how it is well-suited to THY's regional operation?**

**Simon Ward:** A220 is a clean sheet design tailored for the 100-150 seat market, making it the best choice for Turkish Airlines regional fleet.

Thanks to its all new efficient design the A220 offers efficient aerodynamics, advanced materials, new engines, simple and robust systems and superior cabin comfort with 25% lower fuel burn per seat and 25% advantage in COC per seat (vs. previous generation of aircraft).

Today every Airbus commercial aircraft flying has Turkish parts on them. This is also true of the A220. Türkiye designs and manufactures components such as Fixed Trailing Edge (part of the wing), canopy and harnesses, in total

representing five percent of an A220 by value. Every A220 order adds to the growth and supports the Turkish aerospace industry and the Turkish economy.

The A220 offers high versatility and flexibility to its operators (being operated on flights going from 30 minutes to seven hours). With over 220 aircraft in service (having accumulated more than 1,000,000 flight hours!) being operated on 800+ routes to 325+ destinations, making it the proven choice for airlines to efficiently connect passengers on regional and long-distance routes.

**✈️ Ayşe Akalın: In 2022 commercial aviation has started to recover from impacts of COVID-19 pandemic but this time even the rapid increase has been experienced in demand it exceeded the global**

## INTERVIEW



Ahmet Bolat, Chairman of the Board of Directors and the Executive Committee, Turkish Airlines, Adil Karaismailoğlu, Minister of Transport and Infrastructure and Wouter Van Wersch, Airbus EVP, Head of Region and Sales Europe

**industry's ability to adapt and maintain adequate service to this demand. Do you expect the current supply chain problems, that mainly stems from labor shortages at medium and small suppliers, will continue also in 2023?**

**Simon Ward:** There is no simple source of issues and therefore no identified systemic root cause. The global supply chain and the different tiers of our value chain each face very different singular events

We are working together with our suppliers to mitigate the impact of the current situation on our supply chain and we remain focused on our ramp-up plans.

There are cases of suppliers facing difficulties (issues with raw materials, transportation and logistics (cost and availability, labour resources ....))

This is anticipated, monitored and managed. We have mitigations and

protection measures in place, and we manage these closely on a case by case basis.

Our attention is focused to ensure that the demand expressed to the supply chain is well synchronised with the overall production flows and that demand fluctuations are avoided.

**Ayşe Akalın:** What can you tell us about the current status of your technological

cooperation with Turkish suppliers and Airbus' supply chain here in Türkiye? Can you elaborate on the current value of annual purchases from Türkiye/Turkish suppliers and targets for the future?

**Simon Ward:** Türkiye has been an integral part of Airbus supply chain for more than 20 years, being a partner in all Airbus aircraft programmes, from the A220, A320 to the prestigious A350 including our military aircraft A400M and previously to the world's largest commercial airliner A380. Turkish aeronautical industries progressively embarked on high capabilities and skills in the last 10 years and Airbus is focused on the continued development of long-term cooperation projects with the Turkish aviation industry.



Türkiye suppliers are not only present on Airbus programmes with Turkish Aerospace. In association with Turkish Aerospace, Airbus has contributed to the development and the qualification of SMEs, thus also contributing to the industrial network of Turkish aeronautics. Turkish industry is also delivering engine parts and cabin equipment demonstrating the diversity of Türkiye capabilities.

ADS has successfully leveraged its support partnership on A400M through a strong on ground technical support team providing hands-on training and support in Kayseri for the maintenance of the A400M providing operational availability, in excess of 85%, which is the benchmark for the global A400M fleet.

In the course of cooperation, Airbus generates more than 3000 direct jobs in the Turkish aeronautical industry (estimated to be more than 10,000 indirect) and continues to develop its sourcing in Türkiye to procure a cumulative volume of \$5 Billion turnover from Turkish suppliers between 2020 and 2030.

**Ayşe Akalın:** Can you elaborate on where Türkiye falls in the strategies of Airbus, in out-sourcing and

**building up a global supplier network and how could Türkiye contribute better to Airbus in establishing a sustainable supply chain?**

**Simon Ward:** If we exclude our home nations such UK, France, Germany and Spain, Türkiye is in the top ten supply countries for Airbus. In terms of growing the footprint in Türkiye, Airbus' ambition (Pioneering sustainable aerospace for a safe and united world) very much supports the vision to continue to grow our activities in Türkiye.

Türkiye is a strategic country for Airbus with competitive and capable suppliers. The Türkiye geographical situation is not only an advantage for the airlines to serve worldwide routes but also for the supply chain.

When we talk about sustainability, Türkiye proximity to Europe and Airbus FALs could become an advantage to contribute to the Airbus

sustainability ambition. In the short term we are focused on developing a SAF supply chain in Türkiye and also increasing the pilot training capabilities.

**Ayşe Akalın:** By 2030, 60% of the world's population will be urban. This significant population growth is expected to create a real need for innovative mobility options as ground infrastructure becomes increasingly congested. How does Airbus approach Urban Air Mobility (UAM)? What can you say about Airbus' ongoing efforts, such as CityAirbus NextGen, within the scope of Urban Air Mobility?

**Simon Ward:** UAM is much more than just a vehicle. It is a full and complete value chain where the ground infrastructure is as important. With partners and regulators, we are co-designing vertiports and ground segments to ensure optimal and safe operations.

UAM being a "point to point" mobility solution (on the contrary with "linear" mobility solution), setting up infrastructures can be cheaper and faster than enlarging the public transportation system in an existing area. You don't need to block roads, bridges, cable cars or dig tunnels.

UAM will be a complementary layer to a city's mobility options and part of the urban development strategy. This is why our engagements and partnerships with cities are important to ensure that this new mode of transportation will provide value to the end-customer while being created and accepted with the surrounding communities onboard.

In many parts of the world, eVTOLs will offer a whole new mobility service in the near future. We are aware that the introduction of such a system requires the cooperation of many players with different competences. To contribute to the development of advanced air mobility, we are partnering with leading companies, universities, and research institutions as well as municipalities. Our goal is to build a transport service that benefits society.

**Ayşe Akalın:** Thank you for the interview





# FALCON 8X EXPERIENCE

## FROM ISTANBUL TO PARIS



by Ayşe Akalın

*I had a unique flight experience from Istanbul to Paris thanks to the Falcon 8X, which was on display at the Istanbul Airshow, and its crew and sales team. Of all the large-cabin jets on the market, the Falcon 8X provides an unique combination of efficiency, flexibility, long range and quiet, spacious comfort. All are perfectly balanced to create a flying experience that exceeds the expectations of the most demanding customers. It incorporates Dassault's considerable experience in fighter-derived flight control; ultra-efficient, long-range performance; sound reduction technology, and adaptable interior spaces. The Falcon 8X can fly nonstop from Los Angeles to Istanbul, Istanbul to Singapore, yet easily access short runway airports like London City Airport or Lugano, Switzerland, that are typically off limits to big business jets. The aircraft's spacious cabin is the quietest of any business jet on the market and its revolutionary FalconEye dual Head-Up Display option allows low visibility approaches with 100-foot minima, providing customers a significant operational benefit and greatly improving access to airports under bad weather conditions.*

### FALCON 8X: With the quietest cabin, the most flexible, cost-efficient long-range business jet on the market

The 8X is up to 20% more fuel-efficient than any other aircraft in the ultra-long range segment. Much of the credit goes to the three highly efficient Pratt & Whitney PW307D engines which power the Falcon 8X. Each engine providing thrust at 6,722 lb / 2990 kN while reducing emissions to levels well below the latest standards.

The Falcon 8X offers the greatest range in the Falcon line, along with accessibility to shorter runways, lower operating economics, the industry's largest selection of cabin configurations, and unrivaled flight-handling qualities.

### Optimum Range with Short- field Capability. Maximum Operational Flexibility

The range and flexibility of the Falcon 8X enables customers to fly almost anywhere in the world. The Falcon 8X is capable of flying for 14 hours and 6,450 nm / 11,945 km non-stop – at Mach 0.80 with 8 passengers and 3



Ayşe Akalın, Editor in Chief of Aviation Turkey Magazine, Renaud Cloatre, Regional Sales and Marketing Director of Dassault Aviation, Emillien Etienne, International Sales Manager of Dassault Aviation, Thomas Hetier, Sales Director of Dassault Aviation

crew (85% Annual Wind, NBAA IFR Reserves). This enables direct flights between Asia and North America (Beijing-New York, Shanghai-Seattle), between Asia and Europe (Hong Kong-London), between North America to Middle East: New York-Tel Aviv and between Europe and South America (London-São Paulo).

The Falcon 8X is also capable of approaches up to 6 degrees at 107 knots / 198 kph landing speed (2,220 ft / 677 m landing distance) with a balanced field takeoff

distance of 5,880 ft / 1,792 m. This allows it to serve London City Airport and similar steep-approach and climb-out runways located close to business destinations.

### Less Weight for More Fuel

The longer range – 550 nm further than the Falcon 7X – was made possible by design innovations that enabled it to stretch the 7X fuselage and accommodate more fuel without adding overall weight. Engineers added 1.1 m (3.6 ft) to the 7X

fuselage, allowing the 8X to take on 1,360 kg (3,000 lb) more fuel, or a total fuel weight of 15,940 kg (35,140 lb). The weight gain of the extra fuel was offset by an equal weight reduction in the redesigned wing panels and ribs, making the Falcon 8X empty weight nearly identical to that of the 7X. Reengineered winglets and a new leading-edge wing profile also improve the 8X's lift-to-drag ratio.

The Falcon 8X is up to 30% more fuel efficient than any other aircraft in the ultra-long-range segment. Range capability is further



boosted by a 2% fuel consumption improvement in the three enhanced Pratt & Whitney PW307D engines that power the Falcon 8X. The new engines also provide higher thrust at 6,722 lb / 29,90 kN (sea level, ISA +17C) – a 5% thrust increase over the 7X – and reduce emissions to levels well below the latest emissions standards. Other enhancements include fan seal improvements and more advanced digital flight controls.

The Falcon 8X is able to land at 85% of its maximum takeoff weight. This allows operators to make a short hop to an interim airport, pick up passengers, and then continue on to an overseas destination without having to refuel. For example, the 8X can fly from Washington to New York, and then proceed to an onward destination up to 4,500 nm away – up to 20% farther than competitor aircraft.

## The Largest Selection of Cabin Customization Configurations in Business Aviation up to 12-16 passengers

The longer Falcon 8X cabin enables operators to incorporate virtually any option passengers might wish for in an ultra-long-range business jet: luxury VIP suite, ultra-flexible seating and conference layouts, spacious galley or crew rest area – while retaining the bright cabin and low noise levels that the aircraft is renowned for.

There's room enough for 12-16 passengers – with a variety of options for working, dining, relaxing and sleeping.

Dassault interior designers and industrial engineers collaborated to yield multiple standard cabin configurations, the most in business aviation.



## ARTICLE

Cabin air is refreshed continuously for an environment that is 10 times cleaner than today's most advanced office buildings. Cabin altitude pressurization is maintained at a very comfortable 3,900 ft (1,189 m) at 41,000 ft (12,497m) cruise, compared with 6-8,000 ft for airliners and typical business jets. So, passengers not only travel in the most comfortable conditions, they arrive at their destination fully refreshed and ready to go

### THE PILOT'S FAVORITE COCKPIT

To pilots, the Falcon 8X will fly almost identical to the 7X. Aircraft design differences are adjusted for in the control load and fly-by-wire algorithms.

Dassault Aviation introduced digital flight control for business aircraft more than a dozen years ago with the launch of the Falcon 7X, leveraging four decades of path-stable, closed-loop auto



trim controls for military aircraft. The DFCS on the Falcon 8X builds on this heritage, further simplifying the pilot's workload for even greater safety and flying efficiency. Digital flight controls save weight and improve reliability. They make handling more precise, reduce pilot workload, and, most critically, provide flight envelope protections that ensure a safer and smoother flight. Dassault

Aviation is the only business jet manufacturer that designs and manufactures its full Digital Flight Control System. Other OEMs buy digital flight control systems from third-party suppliers. Dassault engineers believe that maintaining full control of the design and production process is the best way to integrate fast evolving DFCS technology into the design of its aircraft.

The Falcon 8X cockpit avionics package includes the third-generation EASy III system, powered by Honeywell's Primus Epic platform. Among new features are an integrated controller-pilot data link communication (CPDLC) system and RDR 4000 IntuVue 3D color weather radar that provides predictive lightning and hail detection as well as 60 nm range Doppler turbulence detection. Hazardous weather and the vertical definition of thunderstorms can be seen at distances up to 320 nm.

Dassault's FalconSphere II electronic flight bags (EFBs) are integrated into the console. Falcon Sphere II hosts weight and balance charts, aircraft manuals, dispatch documentation, master minimum equipment lists, maintenance procedures, and Falcon Aircraft Performance data.



Falcon 8X landed to Paris Le Bourget Airport after its journey from Istanbul with Dassault Aviation Sales and Marketing Team and Ayse Akalin, Editor in chief of Aviation Turkey

The "**intersection moment**" of value, trust,  
solution and technology

The "**present time**" of development



**TÜRKSAT**  
**ICT**



## FalconEye Combined Vision System

Most Falcon 8X buyers opt for the FalconEye combined vision system (CVS) – the first Head-Up Display (HUD) to blend synthetic, database-driven terrain imaging and real-world thermal and low-light camera images into a single view, providing an unprecedented level of situational awareness to flight crews in challenging weather conditions and all phases of flight. FalconEye is certified by EASA and the FAA for an enhanced flight vision system (EFVS) capability that provides operational credit for poor visibility approaches down to 100 ft, greatly improving access to airports and significantly enhancing aircraft fleet efficiency.

In 2020, the FalconEye option was further enhanced with the addition of a dual-HUD configuration.

FalconEye's 30x40 degree field of view is one of the widest angles on any

HUD, ensuring full viewing coverage with 1280x1024-pixel resolution. FalconEye features a fourth-generation multi-sensor camera whose six sensors present high-quality images in both the visible and infrared spectrums. These images are combined with three dedicated worldwide synthetic vision databases that map terrain, obstacles, navigation, and airport and runway data. FalconEye was developed in partnership with Elbit Systems.

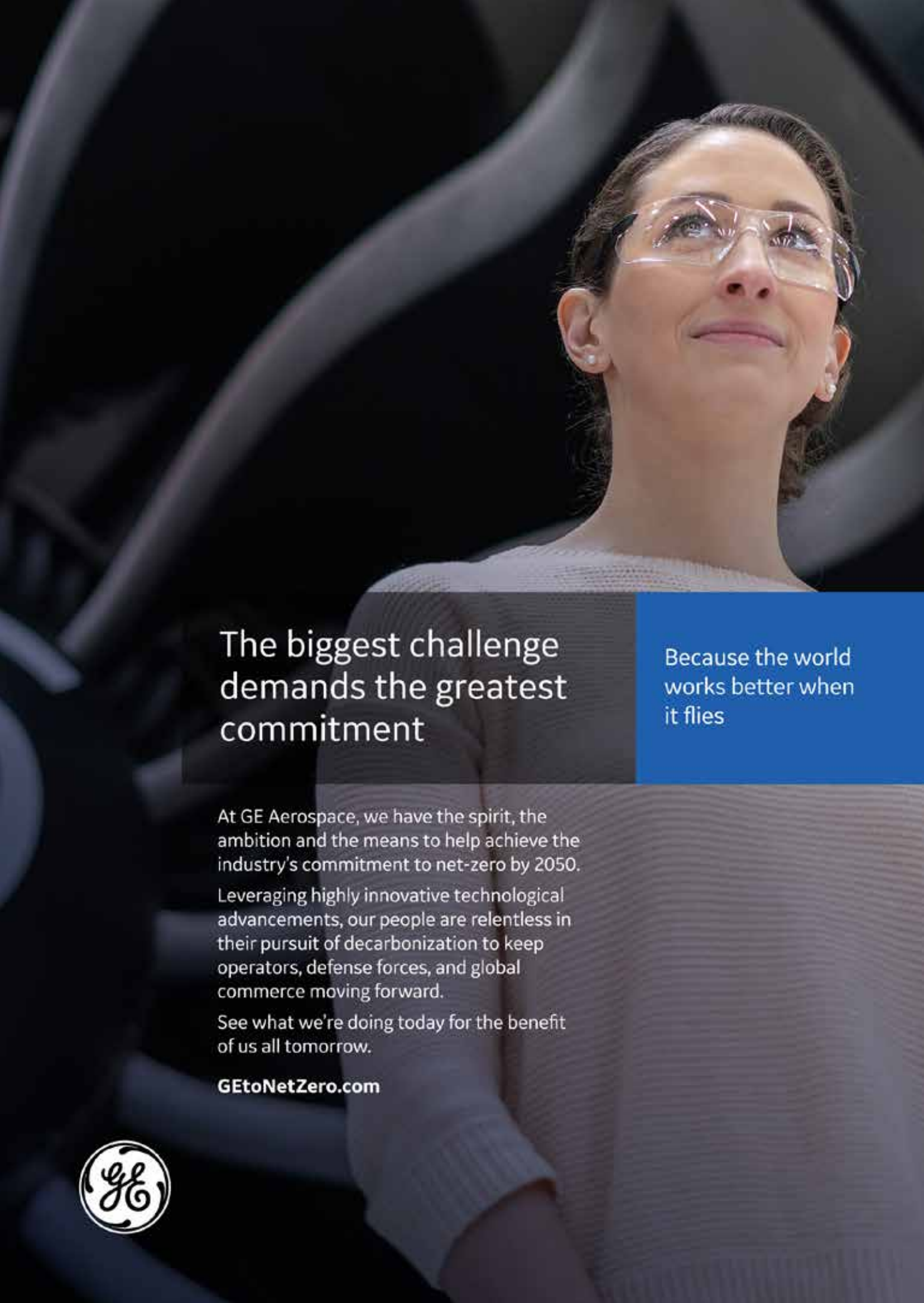
Pilots have traditionally used EVS guidance on a HUD to supplement data from ground-based instrument landing systems, as well as GPS-based systems, for greater safety and lower descent minimums at airports. Business aviation operates

at many secondary, smaller airports lacking ground equipment for ILS low approaches during bad weather.

The industry has long desired an autonomous, onboard system permitting approaches to these airports in low-visibility or even no-visibility situations--a system that can see airport, runway, terrain and obstacles regardless of the weather conditions.

Two technologies offer this opportunity. Enhanced Vision Systems (EVS) rely on infrared cameras to see in darkness and in adverse weather conditions. But EVS has limited ability to see through clouds and precipitation and offers only a limited advantage versus the naked eye. Infrared-only sensors are limited due to their short bandwidth of



A woman with dark hair tied back, wearing clear safety glasses and a light-colored sweater, is looking upwards with a slight smile. In the background, the large, curved blades of a jet engine are visible, creating a sense of scale and industrial setting.

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light detection. Moreover, they don't detect LED lights which are becoming more commonplace to light runways approaches and taxiways (replacing traditional incandescent lights). During a descent to landing in low visibility, EVS picks up runway environment and other visual cues only at the very end of the approach, close to the touchdown point.

Conversely, the second technology, Synthetic Vision Systems (SVS), present a crisp picture of runway and terrain as well as some obstacles such as high-rise buildings in all-weather conditions,

but won't show real-world runway obstacles such as a wayward aircraft, fuel trucks or animals. Synthetic vision derives position on GPS and onboard databases and provides situational awareness far from the runway and throughout an approach. However, it's not an image of the real external world. It cannot be used as reference tool during the final approach, flare and touchdown or during takeoff.)

Dassault's solution to these limitations is a breakthrough safety system, dubbed FalconEye. An industry first, the revolutionary camera of

FalconEye integrates six sensors working together across a very large bandwidth (from Infrared to Low-light). The data fusion of the six images provides a clear view of the external world in any weather conditions. 78, FalconEye integrates enhanced vision and synthetic vision technologies in the same head up display image. It's a "best of both worlds" solution providing the pilot for the first time the ability to fly with improved situational awareness in all conditions and with all the visual cues required to fly right down to the runway, regardless of weather.

**Service centers on six continents. A team of more than 1,700 professionals dedicated to keeping customer aircraft in the air.**

Throughout the life of the Falcon 8X, customers can rely on the Whatever It Takes® philosophy of Dassault's global service network.

In 2019, Dassault Aviation acquired the worldwide maintenance facilities of ExecuJet, strengthening its global product support footprint, especially in Asia-Pacific, Oceania, the Middle East and Africa.



Dassault also acquired the maintenance activities of TAG Aviation and RUAG, reinforcing its European service center network.

Dassault Aviation supports Falcon operators with a network of more than 60 service centers, 16 regional spares distribution depots and more than 100 field representatives spread across six continents.

In 2019, Dassault Aviation opened a new \$50 million, 180,000-ft<sup>2</sup> (16,500-m<sup>2</sup>) flagship spares distribution center in Tremblay-en-France, in the immediate environs of Paris-Charles de Gaulle Airport. The proximity of the facility to one of the world's major transport hubs, together with its state-of-the-art design, will help ensure that parts and tools arrive in the hands of Falcon customers in Europe, the

Middle East, Africa and the Asia/Pacific region even more rapidly than before.

FalconResponse, an industry first, is Dassault's comprehensive portfolio of Aircraft On Ground (AOG) services. In the rare event that a Falcon operator has an AOG situation requiring emergency repair, a call to the global 24/7 Falcon Command Center activates a dedicated "GoTeam" of engineers, parts specialists and frontline managers to return the aircraft to flying condition as quickly as possible. If necessary, members of the GoTeam can utilize one of two dedicated Falcon Airborne Support aircraft that stand by to expedite the shipment of repair teams and spares to remote sites. Alternative lift flights – another industry first – are also available to customers affected by an AOG.

## More return on customer investment. Lower operating and maintenance costs. Higher resale value.

Falcon models hold their value. They retain up to 10% more value over an extended 10-year period than their closest competitor. Market analysis shows high demand for second-hand Falcons means they also tend to take less time to resell.

Direct operating costs are estimated around US\$4,000 per hour, thanks in part to elimination of

the basic two-month maintenance interval. If operated for six years at 600 flight hours per year, the Falcon 8X will save an estimated \$8.5 to \$11 million compared with its primary competitors, including higher resale value.

The current fleet of more than 2,100 Falcons operated in 90+ countries fully demonstrates the exceptional strength of the Falcon line. Unlike some of their competitors, Falcons do not have any life-limited primary structural parts. Dassault's FalconCare guaranteed maintenance cost program assures budgeting predictability for parts, labor and AOG onsite service 🛩️



# WE EXPECT NARROWBODY TO LEAD AND RECOVER IN EARLY 2023, FOLLOWED BY WIDEBODY IN EARLY 2024

Ayşe Akalın, Editor in Chief of Aviation Turkey magazine interviewed with Sami Özdemir, Regional General Manager of GE Aerospace, about GE Aerospace's capabilities and global presence in the aviation industry and also how GE Aerospace is addressing the future of flight in commercial aviation.

## INTERVIEW

**Ayşe Akalın:** GE Aerospace is a world-leading provider of jet and turboprop engines, as well as integrated systems for commercial, military, business and general aviation aircraft. Could you please briefly introduce GE Aerospace to our readers? Where do you think GE Aerospace is today in regards of capabilities and global presence?

**Sami Özdemir:** GE Aerospace is more than 100 years old. In 1919, the business developed the turbosupercharger which allowed piston-powered airplanes to soar at record heights. By 1943, more than 100,000 GE turbosuperchargers were flying on aircraft.

We pride ourselves as an industry leader. GE Aerospace developed and flew our first jet engine, the I-A, in 1942. Some of our other milestones include: the first engine to fly Mach 2 (J79); the first engine with composite fan blades in airline service (GE90); the most powerful commercial engine (GE9X); and the first additive jet engine parts approved by U.S. FAA (T25 sensor for GE90).

We have around 40,000 employees worldwide, including our technology center in Turkey, and around 150 global sites focused on production assembly, repair and overhaul, research, and engineering.

We see an industry that



Sami Özdemir, Regional General Manager of GE Aerospace and Ayşe Akalın, Editor in Chief of Aviation Turkey Magazine

matters to the world. Through our history in aviation, purpose-driven people and dedication to help develop new technologies to enable net zero, we are positioned to continue to lead this industry.

**Ayşe Akalın:** How would you best describe GE Aerospace in the fields of Commercial Aerospace and jet and turboprop engine segments? Could you please provide some key facts (such as market share in jet and turboprop engines for commercial, business and general aviation aircraft, number of engines delivered so far and jet and turboprop engine backlog) about the company for our readers?

**Sami Özdemir:** GE Aerospace is a global leader in aircraft engines, systems and avionics.

We have more than 39,000 commercial aircraft engines installed globally. This number includes engines from CFM, our 50/50 joint company between GE and Safran Aircraft Engines and Engine Alliance, our 50/50 joint company between GE and Pratt & Whitney. Every two seconds, an aircraft with GE and our joint venture technology is taking off somewhere in the world. Around 400,000 people are in the air right now depending on these engines. Our newest aircraft engines are designed to offer better fuel efficiency and lower CO2 emissions.

For example, The CFM LEAP engine is 15% more fuel efficient than CFM56 engines introduced in the 1990s. GEnx engines offer up to 15% better fuel efficiency compared to GE's CF6 engine. GE9X engines are designed to offer up to

10% better fuel efficiency compared to GE90 engines.

We have a global, open services network that continues to grow to meet the demand of our customers. Of the more than 39,000 commercial aircraft engines installed globally, over 60 percent haven't seen their second shop visit.

Our systems business for civil and military aircraft includes more than 5,000 employees producing a suite of products from electrical power, avionics, aircraft and engine components, and propellers.

**Ayşe Akalın:** Can we please get an analysis of first half of 2022 from GE Aerospace's point of view? Could you provide a capsule summary of your major activities carried out during this period and could you elaborate on your targets for 2023?



**Sami Özdemir:** The industry is experiencing an unprecedented ramp as the pandemic eases coupled with labor and material shortages. In the second quarter alone, GE Aerospace orders grew 26% with both commercial engines and services up substantially, reflecting continued robust customer demand. Revenue was up, driven by significant growth in commercial services. We're optimistic about the future. We think the COVID recovery will be fully realized in 2024; we're focused on our customers and driving a better result for the customer through lean, and we are excited about GE's transformation and the launch of GE Aerospace as a stand-alone company in early 2024.

Some of the major activities over the last year plus include:

- Sustainability
- Launched the CFM RISE program with Safran (June 2021)

- GE selected for NASA's HyTEC compact core development program (Oct. 2021)
  - GE selected by NASA for hybrid electric demonstrator (Oct. 2021)
  - CFM's LEAP engines powered the first experimental flight with passengers using 100% Sustainable Aviation Fuel (SAF) in one of the two engines. The flight was operated using a United Airlines 737 MAX 8 (Dec. 21)
  - CFM selected by Airbus for hydrogen flight testing with modified Passport engine (Feb. 22)
  - Completed 100% SAF ground testing with GE's Passport engine (May '22)
  - GE first in the world to test high power, high voltage hybrid electric components in simulated altitude conditions (July '22)
- Commercial Engines
- Launch of GE9X-powered 777-8F freighter with Qatar Airways order (Jan. 22)
  - First flight of Airbus A321XLR powered by LEAP-1A (June '22)

- Qatar Airways chooses LEAP-1B for the airline's new fleet of 25 firm 737-10 aircraft (July 22)
  - EasyJet chooses LEAP-1A engines to power the 56 Airbus A320neo family aircraft (July 22)
  - Delta announces order for 200 LEAP-1B engines to power Boeing 737-10 aircraft (July 22)
- Avio Aero (A GE Aerospace business)
- Catalyst turboprop completes first flight (Sept. '21); two Beechcraft Denalis testing (June '22)
  - Catalyst selected for Airbus Eurodrone program (March '22)

**Ayşe Akalın:** The COVID-19 pandemic has caused huge global disruption on both commercial and defense operations and programs. The aviation industry has been slowly recovering from coronavirus pandemic-induced downturn starting from 2021. How and to what extent has the COVID-19 pandemic affected GE Aerospace? When do you

**expect to return to pre-pandemic levels?**

**Sami Özdemir:** The pandemic was a catalyst for supply chain and labor challenges. We are working diligently with suppliers to mitigate supply chain constraints and are closely coordinating with airframers to accelerate deliveries and meet customer demand.

It's important that everybody understand that the supply chain challenges in the aerospace industry are far broader than any one commodity at the moment. We see that not only in our own supply chains, but from airframers and others, this is something that we're grappling with broadly.

We are still very optimistic about the industry's recovery. We expect narrowbody to lead and recover in early 2023, followed by widebody in early 2024. Overall departures with GE or CFM equipment are approaching 85% compared to 2019 levels.

## INTERVIEW

**Ayşe Akalın:** What could you tell us about the international presence of GE Aerospace in Commercial Aviation and the major international programs that you have been involved in recently? What key geographical markets are your next targets?

**Sami Özdemir:** We have around 40,000 employees worldwide, including our technology center in Turkey, and around 150 global sites focused on production assembly, repair and overhaul, research, and engineering.

GE has invested hundreds of millions of dollars in its global research centers abroad, including Bengaluru, India, and the Turkey Technology Centre (TTC), located to the southeast of Istanbul, on the outskirts of Gebze.

The EU Technology Development Cluster is a continental collaboration model made up of Avio Aero, Polonia Aero Laboratories, GE Aerospace Poland-EDC, GE Aerospace Czech, and a slew of R&D centers, universities and experts cooperating on innovation projects. Today the network includes highly respected universities and polytechnic schools in Italy, Poland and the Czech Republic.

We have a global presence and continuously evaluate market demand as it evolves to determine locations for future business.



**Ayşe Akalın:** How is GE Aerospace addressing the future of flight in commercial aviation? What kind of new engines and technologies do you see a demand for in the coming years? What can the industry expect to see on the horizon as new engines and innovative technologies from GE Aerospace to further strengthen its market-leading product lineup and meet the evolving needs of global customers? Which technology or trend do you think will have the biggest impact on the

**commercial aviation industry in coming years?**

**Sami Özdemir:** At GE Aerospace, we are taking bold action to define and develop technologies for the next generation of engines, including launching three key efforts to explore new engine architectures, to develop hybrid-electric capability and to enable the use of alternative fuels.

These efforts include a partnership between Airbus and CFM International, our 50-50 joint company with Safran Aircraft

Engines, to conduct flight tests of a hydrogen-powered jet engine; a partnership with NASA and Boeing to develop and fly a megawatt-class hybrid electric propulsion system; and a joint CFM effort to develop and fly an advanced, open fan demonstrator as part of CFM's RISE program, short for Revolutionary Innovation for Sustainable Engines. The goal of CFM's RISE Program is to achieve at least 20% lower fuel consumption and CO2 emissions compared to today's most efficient engines.



Climate change will continue to drive and increase the urgency to introduce propulsion systems that get the world to more sustainable flight. And these kinds of disruptive technologies that revolutionize aircraft engines are needed to truly reach our net-zero ambitions.

**Ayşe Akalın:** Decarbonizing commercial flight is the greatest challenge the modern aviation industry has ever faced. Not because of the technical advancements needed to achieve it, but because

there is no other option but to make it happen. Can you elaborate on GE Aerospace's sustainability goals and the ongoing sustainability projects?

**Sami Özdemir:** GE Aerospace is already at work today to develop breakthrough technologies for the benefit of us all tomorrow, such as advanced new engine architectures like open fan, hybrid electric propulsion and hydrogen fuel combustion. The aviation industry's ambition, which GE supports, is to reach net-zero CO2

emissions from commercial flight by 2050.

GE projects include:

- The CFM RISE Program, or Revolutionary Innovation for Sustainable Engines. CFM is a 50-50 joint company between GE and Safran Aircraft Engines. Through the RISE program, we're maturing multiple technologies to achieve at least 20% better fuel efficiency compared to our most efficient engines today. This includes the development of new advanced engine architectures, such as the open fan, and compact engine core designs.

- As part of the Electrified Powertrain Flight Demonstration (EPFD) project, we're collaborating with NASA and Boeing to develop a megawatt-class hybrid electric powertrain for commercial aviation.

- We've also announced plans to develop a hydrogen combustion engine and flight test it with Airbus. This will lead to the development of new cryogenic fuel storage and delivery systems and a combustor capable of burning hydrogen.

We'll see open fan, hybrid electric and hydrogen technologies go through ground and flight tests this decade. What we learn could lead to the development of new engine products for entry-into-service in the mid-2030s.

Growing adoption and availability of Sustainable Aviation Fuel (SAF) is also significant to reaching net-zero. All GE and CFM

International engines can operate on approved SAF today.

**Ayşe Akalın:** How much time, effort and money does GE Aerospace set aside on R&D annually to assist sustainability efforts and projects?

**Sami Özdemir:** GE Aerospace spent \$1.6 billion on aviation research and development in 2021, including emissions-reducing technologies.

**Ayşe Akalın:** The use of biofuels in commercial airplanes has gained critical ground during last two decades. Does GE Aerospace engines for commercial airplanes can operate on approved Sustainable Aviation Fuel (SAF) today? When do you plan to start deliveries of commercial airplane engines capable of operating on 100% biofuel?

**Sami Özdemir:** All GE and CFM International engines in service today—and in the future—can operate with approved SAF. That's because all approved SAF available today is considered drop-in. Drop-in SAF means the fuel meets current petroleum-based jet fuel requirements. It can be substituted for fossil-based jet fuel without any modifications to engines and airframes, and is therefore compatible with the existing commercial fleet, as well as with other parts of the fuel distribution and storage infrastructure.

## INTERVIEW



Currently, SAF approved for use is a blend of petroleum-based Jet A or Jet A-1 fuel and a SAF component with a maximum blend limit of 50%. One of GE's fuel experts chairs an international task force to develop standardized industry specifications supporting adoption of 100% drop-in SAF, which does not require blending with conventional jet fuel. Drop-in 100% SAF is not yet qualified by ASTM International, an organization that develops technical standards.

**Ayşe Akalın:** On June 28, 2021 GE released its 2021 Sustainability Report highlighting how GE Aerospace is rising to the challenge through technologies available now, such as advanced Ceramic Matrix Composite materials and GE's 360 Foam Wash. Can you

**please briefly introduce these two innovative technologies to our readers?**

**Sami Özdemir:** Ceramic Matrix Composites (CMCs) are a type of advanced material containing silicon carbide fibers. CMCs are one-third the weight of traditional metal alloys with two times the temperature capability, helping improve engine thermal efficiency, thus reducing fuel consumption and CO2 emissions. CFM's LEAP engine, which entered commercial service in 2016, was the industry's first to contain CMCs in the hot section of the engine.

GE's 360 Foam Wash is an alternative to the water wash method for cleaning aircraft engines. It restores engine performance leading to reductions in fuel consumption. The process involves injecting a specially-formulated,

proprietary solution that removes dust and dirt particles in the engine. The system is self-contained, allowing it to be used inside maintenance hangars or outdoors. GE's 360 Foam Wash is approved for use on multiple GE engine programs, including models of GE90, GEnx, and CF34. GE first began testing foam wash in the field with customers in 2017. Since then, more than 1,000 foam washes have been completed.

**Ayşe Akalın:** When it established a light bulb factory in cooperation with the Koç Group in 1948 GE became one of the first foreign industrial ventures in Türkiye, and supporting both airline operators with commercial airplane jet engines and the Government with fighter jet engines GE Aerospace has been present in the

country since 1985 through TEI. How would you summarize GE Aerospace's involvement in Türkiye over the last decades? Can you elaborate on the footprint of GE Aerospace in Turkish commercial aviation sector?

**Sami Özdemir:** Operating in Turkey almost 75 years, GE has been growing through strong partnerships, investing in technology and local capabilities in energy, healthcare, and aviation sectors. We are supporting Turkey's more sustainable development, with advanced infrastructure technologies and services, as well as with its over 2,500 employees and expanding local supplier ecosystem. GE has three production facilities involving renewables, energy transmission & distribution and aviation.

The installed base of GE wind turbines in Turkey is over 2 GW, across more than 60 wind farms. GE-owned LM Wind Power's Bergama facility in Izmir, with its more than 700 employees, produce blades locally for domestic use and exports. GE Hydro's installed base is more than 10 GW. GE's power transformer production facility exports 90% of its total output. GE Healthcare has a proud history in Turkey, too. More than 50,000 of our medical systems are installed in over 3,000 health institutions, and our equipment touches

more than 200,000 lives every day in Turkey alone.

We have a robust aviation history in Turkey. GE has a large installed base of military engines operated by Turkish Armed Forces. GE and its joint ventures also power more than half of commercial aircraft in Turkey.

GE Aerospace made its first investment in Turkey in 1985 through a joint venture with Tusaş Engine Industries (TEI) in Eskişehir. Today TEI is a hallmark of our aviation relationship and is a leader of GE's global supply chain for engine parts. Today, more than 1,500 different types of high-tech engine parts are produced at TEI for more than 50 engine groups, including CFM LEAP and GENx engines. TEI has more than 3,000 employees. This partnership has strengthened Turkey's export capability in aviation globally. Export volume has reached more than 200M USD by the end of 2021. I am also proudly serving as Vice Chairman of the Board of TEI since Jun 2021.

GE Aerospace's Turkey Technology Center in Gebze employs 450 Turkish engineers working on R&D, new technology design and development and aircraft engine software solutions. Turkey Technology Center, which is one of the global centers for GE Aerospace's Engineering Division, develops manufacturing and repair technologies, materials, design and



software for the aviation business, celebrating 21 years. These 450 engineers generated over 3.5 million engineering hours up to now. The Repair Development Center at TTC, established in 2012, was inaugurated to help better serve the aviation and energy industries.

In 2014, a GE Coating Primary Laboratory at TTC has established. We inaugurated a TTC Additive Lab in 2018.

**✈ Ayşe Akalın:** Some years ago GE/CFM technologies were power more than 60% of aircraft in Turkey. Can you elaborate on the

**current status of your cooperation with Turkish airline operators? How many jet engine orders have you secured so far for the commercial airplanes from Turkish airline operators and how many of them have been delivered during the first half of 2022 to end users?**



Orkun Tuncer – Regional Sales Director Necati Gokyar – Field Service Engineer Zeynep Karagol – Senior Field Service Engineer Huseyin Gokcan – Senior Customer Contracts Manager

## INTERVIEW



**Sami Özdemir:** GE and CFM have more than 1,000 engines in service and backlog in Turkey. We are proud to power THY's 787 Dreamliner and MAX fleet with our most recent technology on GEnx and CFM LEAP-1B engines. We are also proud to power Pegasus A320/321neo and Sun Express' MAX fleet with CFM's LEAP engines.

We have been working very close to all airlines that operate our CFM and GE engines. We have our Customer and Product Support team located in Istanbul and also Customer Program Manager in our MRO shops around the globe who are working with Turkish operators on a daily basis to support their operations.

**Ayşe Akalın:** What are your predictions for commercial aviation in Türkiye in terms of growth, challenges and opportunities? How do

you see the commercial airplanes market developing in Türkiye and how does GE Aerospace provide support services in country?

**Sami Özdemir:** Commercial aviation in Turkey has been growing since 2004 despite several challenges such as geopolitical issues, economic downturns, etc. It is not only highly skilled people, management and resilience of Turkey against such issues, but also Istanbul serves as a great hub for the airlines who can reach more than 60 countries within a four-hour flight.

As mentioned above, our Customer and Product Support teams located in Istanbul have long supported our local customers. We also have an On Wing Support Supplier agreement with Turkish Technic where the Turkish Technic team provides technical services on behalf of GE Aerospace.

**Ayşe Akalın:** Can you elaborate on the importance of the GE Aerospace Türkiye Technology Center (TTC), established in İstanbul Gebze Free Zone, for both GE Aerospace and Türkiye? How many engineers are currently working at the TTC and how many millions of hours of engineers has been generated so far since its inception at the TTC?

**Sami Özdemir:** GE Aerospace is a global company looking for passionate people worldwide to help define the future of more efficient flight. At our Turkey Technology Center, 450 engineers collaborate with customers on engineering and software solutions. They are currently working on R&D, new technology design and development and aircraft engine software solutions.

**Ayşe Akalın:** Can you elaborate on your short and long-term objectives, your vision for Türkiye?

**Sami Özdemir:** Turkey has a lot of advantages for commercial aviation, such as a young population, geographical location, resilient and dynamic economy, and last but not least, a popular tourist destination. Commercial aviation is growing following the COVID-19 pandemic. We have always had a major presence in Turkey since early 1980s not only with our investments, but also with our commercial engine fleets. We are very fortunate and humble for being selected a major aviation company in Turkey.

**Ayşe Akalın:** Would you like to add anything as a message to our readers?

**Sami Özdemir:** Our purpose at GE Aerospace is "Invent the Future of Flight, Lift the People Up, and Bring them Home Safely." We work with this purpose every day to serve the flying public. It gives us a big responsibility and also excitement for the future of the flight. I would like to thank you for giving me this opportunity to share about GE Aerospace to your readers.

**Ayşe Akalın:** Thank you for sparing your valuable time to our readers 🙏



# NEW SERVICES BY TURKISH CARGO

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# IATA Wings of Change 2022 Held in Istanbul

*IATA Wings of Change 2022 was held in Istanbul organized by the International Air Transport Association (IATA) and hosted by Pegasus Airlines. As the Aviation Turkey team, attended the event and followed the event for our readers.*

Attendees on the first day included Türkiye's Deputy Minister of Transport and Infrastructure, Dr. Ömer Fatih Sayan; Chair of the IATA Board of Governors and Pegasus Airlines Vice-Chairperson of the Board and Managing Director, Mehmet T. Nane; IATA Director General, Willie Walsh; and Pegasus Airlines CEO, Gülüz Öztürk, along with government officials, industry representatives and aviation professionals from Türkiye and many other countries.

Event, bringing together the key European and global aviation players to discuss, debate, and agree on the way forward on some of the most important topics, such as:

State of the industry: Covid-19 consequences, the war in Ukraine, soaring jet fuel prices, inflation... the air transport industry is not spared from the many geopolitical and industry-specific challenges posed

in its quest for recovery. How can and how will it face the new reality and ensure its competitiveness and connectivity?

**Sustainability:** Climate change has become an absolute priority and the airline industry is committed to Fly Net Zero. What role for European aviation and how does it plan to address the barriers among which insufficient production, availability, and high prices of Sustainable Aviation Fuels?

**Infrastructure:** Capacity continues to constitute a major headache in Europe, but regulators and users will need to find solutions together, particularly in the skies, to ensure aviation continues to deliver its many benefits to passengers, societies, and economies in an environmentally sustainable manner.

**Diversity, Inclusion and Accessibility:** Making global

air travel more diverse and fully accessible is not only the right thing to do but makes perfect business sense. Our speakers will discuss and share insights on what is needed to achieve this high priority item.

**Building Back Together:** Tourism and Aviation are intertwined and need to agree on the way forward to ensure the successful partnership is sustained and sustainable. In addition, key priorities such as Slots and Consumer Rights will be addressed.

Delivering the opening speech on the first day of the conference, Chair of the IATA Board of Governors and Pegasus Airlines Vice-Chairperson of the Board and Managing Director, Mehmet T. Nane, said: "The past few years have been the most difficult of the aviation industry to date. We have experienced and learned a lot. Now it is the time to recover and build



by Şebnem Akalın

back stronger than ever. We firmly believe in the power of working together to shape the future growth of a safe, secure and sustainable aviation industry that connects and enriches our world. We all have the power to achieve this and to make it happen, as long as we join forces and stand shoulder to shoulder. That is why a united aviation ecosystem is vital, because only then can we build on each other's strengths and achieve far greater things than we can individually, from innovation and diversity to safety and sustainability." He continued: "Stakeholders from across the aviation sector are united on the need for regulations which promote the coexistence of different business models, encouraging healthy competition and maximum consumer choice. Türkiye is a good example of how to grow national connectivity and allow different kinds of carriers to succeed. And what is crucial is that policies for growth go hand in hand with sustainable solutions."

Türkiye's Deputy Minister of Transport and Infrastructure, Dr. Ömer Fatih Sayan, said:



Mehmet Nane, Chair of the IATA Board

"As a country we have the geographical advantage of being within a four-hour flight distance to 67 countries with 1.6 billion people and 8 trillion dollars of trade volume. Combining this strong geographical advantage with our strong airlines, comprehensive maintenance centers, modern airports, promising aviation training centers, and well-trained personnel, Türkiye is in a great position to become a world leader in aviation. New ideas and policies that are to be discussed here during this event will determine the roadmap of European aviation in the coming period. We believe that all challenges can be overcome first with regional and then with strong global cooperation."

Güliz Öztürk, CEO of Pegasus Airlines, who also spoke at the event said: "As Pegasus Airlines, we are delighted to host IATA Wings of Change Europe, one of the most important aviation conferences in the European region. At this important event, we come together with aviation professionals from all over the world to exchange ideas and discuss highly significant issues that will shape the future of our industry. I am pleased that we can emphasize the importance of an inclusive and diverse corporate culture within the global aviation industry and underline that companies should be prioritizing these issues. I look forward to witnessing the positive outcomes that this gathering will bring".

And IATA Director General, Willie Walsh, said: "Europe, just like the rest of the world, relies on air connectivity, which is vital for society, tourism, and trade. Business users of the European air transport network - large and small - have confirmed this in a recent IATA survey: 82% say that access to global supply chains is 'existential' for their business. And 84% 'cannot imagine doing business' without access to air transport networks," said Willie Walsh, IATA's Director General, and continued: "We should be focusing on incentivizing SAF production in the greatest quantities at the lowest cost, wherever that may be."

Prof. Dr. Ahmet Bolat, Chairman of the board, Turkish Airlines delivered a speech on the critical role of Turkish Aviation in IATA Wings of Change Europe conference. He stated that in addition to its leadership position as a global aviation powerhouse, Türkiye's air transport industry is critical for the country's economy and its export including of services.



Güliz Öztürk CEO of Pegasus Airlines

## SunExpress Signed the IATA 25by2025 Global Initiative for Gender Equality in the Aviation Industry

SunExpress Signed the IATA 25by2025 Global Initiative for Gender Equality in the Aviation Industry first day of the event. Commenting on the subject, SunExpress CEO Max Kownatzki said, "As SunExpress, it is of great importance for us to provide a working environment that encourages diversity and inclusion that allows the development of our colleagues. Providing equal opportunity to everyone is among our top priorities. For this purpose, we established

our Diversity and Inclusion Committee, a first in the Turkish aviation industry, where our employees work voluntarily. We are now reinforcing our commitment in this area by signing this important initiative. Our female colleagues work hard at every stage of our operations in the air and on the ground, and we are proud of this. We will continue to move our brand forward by providing more opportunities for them to increase their contribution."

IATA Managing Director Willie Walsh said, "I am pleased to see SunExpress's commitment to promoting gender diversity in the aviation industry as one of the signatories of the IATA 25by2025 initiative. "As an industry, we are committed to improving the gender balance in aviation, and we will make progress by transforming the 25by2025 commitment into results."

SunExpress, which supports the initiative, commits to reporting diversity indicators every year and increasing the representation of women, especially in senior positions.



Willie Walsh, Director General of IATA and Max Kownatzki CEO of SunExpress

# UNILATERAL MEASURES REGIME IN LIGHT OF THE CHICAGO CONVENTION

The international civil aviation is one of the sectors most adversely affected by the Russia-Ukraine conflict. In relation to the ongoing crisis, the United States of America, and the European Union on one side and the Russian Federation on the other side have taken unilateral measures, more commonly referred to as sanctions, against each other and restricting civil aviation activities between them. Currently, and in the broadest sense, the airspace of each side is closed to aircraft registered by the other side.

The history of aviation is, in a sense, the history of international agreements that were created as a result of the consensus of states. The most fundamental international legal document, known by its short name, the Chicago Convention of 1944, establishes the rules on how states can allow each other to use their airspace and can impose restrictions on such usage.

In Article 1 of the Chicago Convention, the contracting states recognize that every state has "complete and exclusive sovereignty" over the airspace above its territory. Accordingly, each signatory has the absolute right to open and close its

airspace to others. Although it may seem reasonable at first to claim that states have the right to close their airspace to others as they wish based only on Article 1 of the Chicago Convention, in our opinion, especially in some respects, this interpretation may be both premature and lacks the holistic perspective.

In the Preamble of the Chicago Convention, it is stated that the consensus among states is based on the principle that "International Civil Aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated in a soundly and economically." Accordingly, international civil aviation should be developed, be based on the principle of equality, and be operated economically.

According to Article 11 of the Chicago Convention, the rules governing the entry, departure, operation, and navigation of aircraft registered to the contracting state shall apply to aircraft of all contracting states without distinction as to nationality. In paragraph (g) of Article 44 of the Chicago Convention,



Atty. Lale Selamoğlu  
KAPLAN



Atty. Mustafa Cem  
ARTEKİN, LL.M.

avoiding discrimination between contracting states has been mentioned among the objectives of the International Civil Aviation Organization (ICAO). Other aims and objectives are: (a) ensure the safe and orderly growth of international civil aviation throughout the world; (b) encourage the arts of aircraft design and operation of peaceful purposes; (f) ensure that the rights of contracting states are fully respected and that every contracting state has a fair opportunity to operate international airlines. As per Article 15 of the Chicago Convention, every airport in a contracting state which is open to public use by its national aircraft shall likewise be open under uniform conditions to the aircraft of all the other contracting states, including the use of all air navigation facilities. Article 22 of the Chicago Convention stipulates that the contracting states facilitate and expedite the operations of aircraft registered to

other contracting states. ICAO Assembly Resolution A40-9, Appendix A, Section 3 stipulates that member states should avoid adopting unilateral measures that may affect the development of international air transport. The Chicago Convention was followed by the International Air Services Transit Agreement, whereby each contracting state grants to the other contracting states (1) the privilege to fly across its territory without landing; (2) the privilege to land for non-traffic purposes. Both the Chicago Convention and the International Air Services Transit Agreement have been signed by many states. Bilateral or Multilateral Air Transport Agreements also allow states to use their airspace for third, fourth, and fifth freedom traffic rights.

With the Russia-Ukraine crisis, the European Union revised its Regulation No. 833/2014 in 2022 and has prohibited any non-Russian-registered aircraft

which is owned or chartered, or otherwise controlled by any Russian natural to land in, take off from or overfly the territory of the Union. Similarly, the US, through the Department of Transportation (DoT) Decision No. 2022-3-2 dated 2022, has prohibited Russian airlines and operators from using its airspace. It has become practically impossible to repair, maintain, overhaul, and insure aircraft associated with Russia as outlined under these unilateral measures. In addition, the Russian Federation has also closed its airspace to many countries. Another significant development in 2022 was when Bermuda, which under the 83bis Agreement with the Russian Federation held the airworthiness authorization and registration of many Russian aircraft, cancelled the airworthiness certificates of these aircraft, and demanded that the Russian Federation ground them. In response, the Russian Federation requested that Bermuda cancel the registration of these aircraft and suspended the 83bis Agreement with Bermuda. Despite Bermuda's refusal of this request, the Russian Federation registered these



aircraft under its registry. However, an aircraft is only permitted to have one registration as per Article 18 of the Chicago Convention, because according to the preceding Article 17, the registration establishes the nationality of the aircraft, and establishing the nationality of an aircraft is essential for determining the law that will apply to it.

To summarize, in the history of International Civil Aviation, the system that was established by consensus between states and by subsequent bilateral or multilateral agreements have been suspended by Unilateral Measures, with the European Union and the US on one side and the Russian Federation on the other. This is not in the best interests of humans, let alone everything else, the closure of airspace causes additional flight distances,

which in turn results in much more environmental pollution.

In addition, Article 26 of the Vienna Convention on the Law of Treaties, which is the fundamental legal document regulating the law on international treaties, deals with the principle of good faith, and parties to an international treaty must abide by it in good faith. According to Article 27 of the same convention, a party may not invoke the provisions of its internal law as justification for its failure to perform a treaty, while Article 60 allows a country that is party to a treaty to terminate or suspend its obligations to another party that has materially breached the treaty.

War and the harm its causes to civilians are unquestionably unacceptable when there are peaceful solutions.

In addition, we consider that unilateral measures justifying war with the aim of putting other countries in an economically difficult situation, rather than addressing their security needs, are incompatible with the objectives of the Chicago Convention, the direction set accordingly, and the principles of the Vienna Convention on the Law of Treaties. International Civil Aviation, as the name implies, is civil; it exists to serve humanity and that is why it was developed, and freedom of travel and movement is a fundamental right. We believe that restrictions imposed by unilateral measures ultimately have a negative impact on civilians and we hope that parties will take the necessary relief measures under the leadership of ICAO with full participation, with Russia rejoining the Council.



# Ingo-Alexander Rahn:

## "Deutsche Post DHL Group will Spend €7 Billion on Sustainable Fuel and Clean Technologies by 2030"

**✈️ Aviation Turkey:** First, please inform us about DHL Global Forwarding and its worldwide structure.

**Ingo-Alexander Rahn:** For DHL Global Forwarding air, ocean, and overland freight forwarding services are part of our core business. They include standardized transports as well as multimodal and sector-specific solutions, as well as customized industrial projects and customs services. Our business model is based on brokering transport services between customers and freight carriers. The global reach of our network allows us to offer efficient routing and multimodal transport options.

With our over 45,000 employees globally, we serve an established customer base that includes more than 50% of the Forbes 500 companies.

DHL Global Forwarding is part of the world's leading logistics company Deutsche Post DHL Group, which employs approximately 590,000 people and does business in over 220 countries and territories

worldwide. In 2021, the Group generated revenues of more than 81 billion Euros.

**✈️ Aviation Turkey:** What are DHL Global Forwarding's core activities and services in Türkiye? What makes your services stand out in the field of air logistics?

**Ingo-Alexander Rahn:** In Türkiye, we offer transport and logistics solutions for customers from various sectors such as engineering and manufacturing, healthcare and pharmaceuticals, automotive, retail, consumer goods, and e-commerce or perishables. Thanks to our colleagues' broad local expertise and extensive international network, we can connect Türkiye with the world like no other. Our transport and logistics solutions are tailored to the needs of our customers. Our service portfolio includes air and ocean freight, chartering, road and rail freight, industrial projects, warehousing including bonded solutions, customs clearance and consulting, and e-commerce solutions for the Turkish export market. Whatever solution



is needed for a customer, we have the respective capabilities within our network to provide it.

**✈️ Aviation Turkey:** What are your logistics Solutions to improve the efficiency and cost-effectiveness of the company's supply chain?

**Ingo-Alexander Rahn:** Technology and digitalization are crucial to boosting efficiencies and enabling decarbonization of the logistics and transport sector. We are leveraging several technologies – including AI, IoT, Blockchain, and other technologies to achieve this. At the beginning of 2020, we launched our digital customer platform, myDHLi. It's the only fully integrated online platform for freight forwarding

customers. The pandemic, in particular, has clearly shown how important data and transparency are in supply chains. To have a more transparent and resilient supply chain, digitalization and digital solutions play a vital role here. It allows for high data transparency and availability in near real-time so that issues and disruptions can be identified quickly, and counter-measurements can be taken. At the same time, it offers new opportunities for further process optimization. Our myDHLi platform provides customers with entirely transparent management of freight rates, offers, transport modes, carbon emissions, and all other relevant shipment data. A highly intuitive user

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interface makes it easy to use and ensures that customers have all relevant information to hand. Using well-established social media functions such as like, follow, and share allows relevant information to be easily accessed across organizations and trading partners. Customer experience is superior in online services for complete shipment visibility and control in one platform.

**✈️ Aviation Turkey:** One of your prior solutions is DHL Global Forwarding logistics and customs consulting. What are the outlines of these services?

**Ingo- Alexander Rahn:** Thanks to our local expertise and global scale, we take the complexity out of customs by offering a one-stop solution to all our customers' needs. The backbone of our customs services is a dedicated global network of experienced customs consultants. Our customs

consultants can review our customers' supply chain to help enhance customs activities, optimize duties, identify potential risk areas, and optimize internal controls and procedures to maximize internal compliance. In addition to our transport solutions, this is how we ensure a smooth and on-time border crossing of shipments without administrative burden for our customers. Referring to the question about digitalization, we in Türkiye focus on automating customs clearance as much as possible by using RPA (Robotic Process Automation) to save time and speed up the customs process.

**✈️ Aviation Turkey:** The COVID-19 pandemic has caused massive global disruption in commercial operations. The aviation industry has been slowly recovering from the coronavirus pandemic-



induced downturn since 2021. Logistics has taken a significant role during the pandemic. How and to what extent has the COVID-19 pandemic impacted DHL Global Forwarding's operations in Turkey?

**Ingo- Alexander Rahn:** The COVID-19 pandemic impacted every sector across the globe, including logistics. At DHL Global Forwarding, we took this challenge as an opportunity to impact the world positively. Our DHL teams worked

around the clock to ensure that essential medical supplies and protective equipment reached frontliners worldwide. We also mobilized our network across 220 countries on vaccine distribution. The last-mile vaccine rollout was the most significant logistical challenge, given its unprecedented scale and speed — getting the vaccines from the airport to the patient required synchronization of the flow of goods, vaccination points, and storage specific to the local context. To achieve this scale, prioritizing employee safety was critical to business continuity. Only the most crucial DHL personnel worked on-site, while the rest worked from home. To make this process seamless, we had to get the home office and infrastructure in place, including ensuring fast internet connectivity. We deployed all precautionary measures for those on-site in compliance with government guidelines.





As undesirable as the pandemic was for us personally and in business, it also provided us with key learnings and reminders. For example, the pandemic has shown the importance of well-functioning logistic solutions, and it has jump-started work from home, which otherwise would have taken much longer.

**✈️ Aviation Turkey: What are your predictions for air logistics in Türkiye in terms of growth, challenges, and opportunities?**

**Ingo- Alexander Rahn :** In the short term, the global economy is affected by the ongoing war, the related uncertainty, the increase of costs, especially energy costs, and the related inflation globally. Some countries are impacted harder than others. In this environment, the global GDPs are expected to be under pressure and Türkiye will not be an exception. Since the Turkish export depends mainly on

imported goods for further production, it will be key to further exploit and drive innovative solutions in logistics by eliminating inefficient processes and planning carefully.

In the mid to long-term, Türkiye is in a good position for further growth due to its geographical location, modern infrastructure, well-educated workforce, and production capabilities in many industry sectors.

**✈️ Aviation Turkey: We expect that high worldwide inflation**

**will continue into 2023. Demand drive remained low mainly due to inflation experienced by major economies; export orders are still low in emerging economies. Jet fuel price touched \$148/Bbl in Sep '22. Given these obstacles, what are your approach and short and long-term forecast on air freight demand?**

**Ingo- Alexander Rahn:** Currently, there are predominantly two challenges the logistics sector is facing – trade lane disruptions and sustainability. The coronavirus pandemic mainly causes trade lane disruptions in air and ocean freight with regional lockdowns and the war in Ukraine. In terms of sustainability, we must not lose focus of the decarbonization of global transport, despite the challenging market conditions. We are addressing these challenges through early intelligence

by using appropriate tools and technologies to plan around disruptive events like oil price fluctuations or geopolitical tensions.

**✈️ Aviation Turkey: Shifting demographics, technology advancement, digitalization, and the COVID-19 pandemic are significantly transforming work in the logistics industry. An automated and augmented future will shape the future, with technology reducing manual tasks and improving efficiencies along six supply chain segments. What are DHL Global Forwarding's digitalization activities? How is DHL Global Forwarding addressing the future of logistics in terms of technology and innovation?**

**Ingo- Alexander Rahn:** After the industrial revolution (second half of the 18th century) and the development of the standard container (TEU,



## INTERVIEW



in the 1960s) in ocean freight, digitalization is the next big thing for the global economy and logistics. Digitalization affects almost all aspects of life and has the potential to transform countries and their societies, industries, and global trade. As with many other industries and sectors, digital transformation in logistics is gaining momentum. Digitalization is a driver for customer centricity. As already briefly mentioned,

we are leveraging several technologies – including AI, IoT, Blockchain, and other technologies to improve efficiency and transparency for our customers and further drive the decarbonization of the logistics sector. An important role plays our digital customer platform, myDHLi, which we launched at the beginning of 2020. It's the only fully integrated online platform for freight forwarding customers. (see above)



DHL has four Innovation Centers in Germany, Singapore, USA, and the United Arab Emirates, pioneering the future of logistics and driving customer-centric innovation around the world. This global network makes it possible to take regional socio-economic differences into account and actively participate in local innovation ecosystems. Since 2015, over 70,000 visitors came together to exchange with DHL experts and each other – partly virtually due to COVID. These creative hubs host workshops, innovation center tours, events, and collaborative innovation projects to better understand customer needs and identify actions to solve key supply chain challenges.

**✈️ Aviation Turkey:** Could you please enlighten me about your "GoGreen" concept? What solutions does DHL Global Forwarding offer to minimize and avoid logistics-related emissions, waste, and other environmental impacts along the supply chain?

**Ingo- Alexander Rahn:** We recently launched our GoGreen Plus service. It offers sustainable alternatives to our core transport products, such as sustainable aviation or marine fuel. The service is based on the

displacement principle: the more customers book the service, the more alternative energy or clean technology is used – making transport chains greener step by step. Customers can easily choose and book these solutions via our digital customer platform, myDHLi. To reduce CO2 emissions in line with the Paris Climate Agreement, we at Deutsche Post DHL Group will spend EUR 7 billion on sustainable fuel and clean technologies by 2030.

**✈️ Aviation Turkey:** Would you like to add anything as a message to our readers?

**Ingo- Alexander Rahn:** I would like to use the opportunity to greet all the logistics staff for helping our world function, especially in hard times. Innovation, digitalization, and automation are all topics we need to further improve solutions and make them faster, more resilient, and cost-effective. The most important factor in logistics however is the human doing all of the above work.

Special thanks go to DPDHL for being a people-oriented global logistics company investing a lot in its employees and makes them feel valued. The best service comes from engaged and motivated staff 🙌

# Savun- duğumuz bir Gelecek var



## Geleceği Savunuyoruz

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# Aviator Girls Step into Entrepreneurship

*Prof. Dr. Ferhan Kuyucak Şengür  
Doç. Dr. Nazire Burçin Hamutoğlu  
Arş. Gör. Hilal Tuğçe Lapçin  
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"Aviator Girls Take a Step into Entrepreneurship", entitled to receive grant support within the scope of the TÜBİTAK 4004 Education in Nature and Science Camps/Schools Support Programme, was hosted by Eskişehir Technical University between 10th-13th October 2022. In the project team, Prof. Dr Ferhan Kuyucak Şengür, Head of the Aviation Management Department of the Faculty of Aeronautics and Astronautics and Director of Research and Application at Women in Science and Technology in Eskişehir Technical University (ESTU) acted as the coordinator, Assoc. Prof. Dr Nazire Burçin Hamutoğlu from ESTU Learning, Teaching and Development Unit and Department of Aviation Management Research Asst. Hilal Tuğçe Lapçin took part as a researcher.

In the aviation sector, the number of women in professions such as pilot, technician, and manager is considered more "man's job". Although there is an upward trend in the number of women in aviation, this increase is quite limited. In the USA, in 1960, 1% of pilots or technicians were women. This number only increased to 4.3% for pilots and 2.17% for technicians In 2010. Besides, at management levels, the 'glass ceiling effect' effectively promotes women, and women are rarely ever encountered. According to International Air Transport



Association-IATA, less than 5% of global airline chief executives (CEOs) are women.

However, women can play a significant role in the larger entrepreneurship phenomenon and economic development. The field of women's entrepreneurship has come a long way since its emergence in the late 1970s. In 1976, Schwartz published the first academic paper on female entrepreneurship in the

Journal of Contemporary Business. In the 1990s, as the number of women business owners grew, research studies on women entrepreneurs also grew. Initial research focused on listing similarities and dissimilarities between male and female business owners. Differences were reported on educational background, occupation, motivation and business creation and growth methods. Therefore, supporting women's



entrepreneurship and diminishing dissimilarities is very important.

The "TÜBİTAK 4004 Aviator Girls Take a Step into Entrepreneurship Project" aimed at helping aviator girls develop a positive attitude towards practice by becoming aware of their competencies in the field of entrepreneurship. The project aims to enable the target audience to realize the interdisciplinary relations in the field of entrepreneurship with the practice-oriented activities they carried out in Eskisehir. With the planned trips, hands-on training and games, the students will be able to live and have fun at the same time;

- *Gaining and developing a sense of curiosity about science and entrepreneurship,*

- *Realizing the relationships between social sciences and natural sciences,*
- *Gaining awareness about the entrepreneurship ecosystem, raising awareness,*
- *Creative solutions for putting a business idea into practice and preparing a business plan.*

This project's starting point is to reveal female students' entrepreneurial potential. It is crucial to raise awareness among female students about how they can develop a business idea by meeting a social need and how they can turn it into innovation. Especially since the development of these skills at an early age is supported by research

that give more effective results, female students studying at the high school level were preferred as the target audience.

The project participants study at "Sabiha Gökçen Vocational and Technical Anatolian High School" in Eskisehir. The school is an educational institution authorized as a school recognized by the Directorate General of Civil Aviation (DGCA). Mainly it was aimed at female students from the regionally disadvantaged section.

Prof. Dr. Mehmet Başar, Prof. Dr. Abidin Kılıç, Associate Prof. Rüstem Barış Yeşilay, Assoc. Prof. Dr. Zeliha Tekin, Dr. Belgin Bal İncebacak, Research Asst. Aslı Sarışan Tungaç, Teacher Demet Eker, Teacher İlker Atasever

and Teacher Ebru Söğüt provided trainer support for the project. Research Asst. Ferhat İnce, Serhat Etgin, Teacher Gülay Çelik and Teacher Nurdan Rukiye Aydın served as guides.

In the four-day event, STEM-based interdisciplinary entrepreneurship training was given. Training such as "Breaking the Ice", "Entrepreneurship and Innovation", "How did I set up my business?", "Entrepreneurship with games I-II", "Financial literacy", "My Business Model", "Digital entrepreneurship", "Social entrepreneurship", "3D character design and" "Green world thinking and film workshop". The certificate ceremony with dinner was held on the evening of October 13th, sponsored by Pegasus Airlines and MNG Airlines.





## Emirates Orders 5 New Boeing 777-200LR Cargo Planes

Emirates announced that it has placed an order for 5 new Boeing 777-200LR cargo aircraft. Two of the planes will be delivered in 2024 and the remaining three will be delivered in 2025.

With this order, which is over US\$1.7 billion at a list price, the number of wide-body aircraft ordered by the airline has increased to 200.

HH Sheikh Ahmed bin Saeed Al Maktoum, Chairman

and Chief Executive of Emirates Airline and Group, said: "Emirates is investing in new freighters so that we can continue to serve customer demand with the latest fuel-efficient aircraft. This order reflects Emirates'

confidence in airfreight demand and overall aviation sector growth. It lays the ground for our continued growth, which is driven by the reach of our diverse global network, the advanced handling

## Hitit is a Signatory of IATA's 25by2025 Initiative to Achieve Gender Balance in the Aviation Industry

The 25by2025 initiative, launched by IATA, the international organization of the aviation industry, which aims to bring the representation of women in the industry to at least 25 percent by 2025, continues to grow. Hitit, Türkiye's international representative in airline and travel technologies, became one of the signatories of the initiative. Hitit was founded in 1994 by two female partners,

Nur Gökman and Dilek Ovacak, and today, 50% of the board of directors, 65% of senior management, and 35% of the workforce are female. Given the male-dominated employment structure in both technology and aviation, Hitit, which delivers services at the intersection point of these two industries, stands out as one of the exceptional businesses that has been successful in improving the

gender balance above the worldwide benchmarks.

Speaking at the signing ceremony held at the "Wings of Change Europe" event organized by IATA in Istanbul, Nevra Onursal Karaağaç, CMO at Hitit, said: "Today, only 5 out of 1,000 girls under the age of 15 aspire to work in IT sector. This rate is 15 percent for boys. While 88 percent of the employees working for machine learning are men, just

12 percent of them are women, and only 2 percent of information technology patents are held by women. Less than 6% of those who develop mobile apps and software are female. In large technological businesses and S&P 500 companies, women hold just 25% of the mid-level management roles."

Karaağaç noted that Hitit, which has focused on diversity and inclusion since its founding, is one of



infrastructure at our Dubai hub, and the tailored transport solutions that Emirates has developed to serve our varied customers' needs."

Stan Deal, President and Chief Executive Officer, Boeing Commercial Airplanes, said: "We value

the trust that Emirates has repeatedly placed in its all-Boeing freighter fleet. The expansion of Emirates' fleet with these additional fuel-efficient 777 Freighters will enable the airline to support its growing cargo market demand, transporting

goods rapidly and efficiently from origin to destination in the Middle East and around the world."

At last November's Dubai Airshow, Emirates announced a US\$ 1 billion investment to expand its air cargo capacity, including 2 new 777Fs which have already joined the Emirates fleet in 2022, and plans to convert 10 Boeing 777-300ERs into freighter aircraft. The

aircraft conversion work is scheduled to begin in 2023.

Emirates currently operates a fleet of 11 Boeing 777 freighters, in addition to bellyhold cargo capacity on its fleet of widebody 777 and A380 passenger aircraft. Emirates SkyCargo is one of the world's largest air cargo carriers, offering a range of tailored solutions for its customers' requirements.

the few businesses that has been successful in reversing the trend against women in technology:

"Founded 28 years ago by two women who set out to create their own story in the field of airline and travel technologies, Hitit today provides software services for passenger services, operations, accounting and travel solutions to more than 60 airline companies on 6 continents. Hitit systems are used by 77 million travelers each year. Hitit, one of the world's leading companies in its field, has kept its female employee rate high for 28 years. We

have the highest ratio of female managers among publicly traded companies in the software industry in Türkiye. With these rates, which are higher than the global norms, we are held up as an example not just in Türkiye but also throughout the world. Being a part of such a company makes me proud."

Karaağaç stated that the company shapes its approach to social responsibility in accordance with the United Nations Sustainable Development Goals, emphasizing that the approach to diversity

and inclusion is not limited to employment. "We aim to minimize the opportunity gap with the steps we take in the field of education. We take part in initiatives that support gender equality in education. We train women in STEM through the associations and platforms we are a member of. We prioritize young women in internships and recruitment and contribute to their development by providing mentorship and scholarship opportunities. We aim to achieve equitable participation in sports for boys and girls through our Rackets Up program."

## About 25by2025

25by2025 was launched by IATA to raise awareness of the need to improve female representation in the aviation industry. As voluntary initiative, 25by2025 signatories include THY and Pegasus Airlines from Türkiye. ASL Airlines Belgium, ASL Airlines France, ASL Airlines Ireland, FlySafair APG Network, Azerbaijan Airlines, Grupo SATA, Wingie Enuygun Group, FLYONE, La Compagnie, Northern Pacific, SunExpress, Travelport, World2Fly, Aviation Administration of Kazakhstan, Lithuanian Civil Aviation Authority, and Riga International Airport.

# Istanbul Airshow Welcomes Its Visitors for the 13th Time

Istanbul Airshow International Civil Aviation and Airports Exhibition, which has been held at Atatürk Airport since 1996 and is the longest-running organization of the Turkish Civil Aviation Industry, reopened its doors after a 4-year hiatus due to the COVID-19 Pandemic and welcomed its visitors for the 13th time between 6-8 October.

Opened with the participation of Minister of Transport and Infrastructure Adil Karaismailoğlu, the Exhibition brought together commercial aviation companies and aviation enthusiasts from all over the world, and the Turkish Defense and Aerospace Industry companies exhibited their local production aircraft.

Although it has not fully returned to its pre-COVID-19 pandemic days, the Civil Aviation Sector has now entered the recovery phase and

started overcoming the pandemic's damaging effects. The recovery phase is expected to continue until 2025, and from 2025 onward, the global civil aviation sector will reach pre-COVID-19 figures. With more than 40,000 flights in September alone, airports in Türkiye (57) hosted 48 million domestic and foreign passengers in the first 9 months of 2022. The Turkish Civil Aviation Sector, which has grown above the world averages thanks to the increasing demands after the pandemic and the intensity of summer tourism, had the

opportunity to convene at the Istanbul Airshow.

Bringing together the professionals of world aviation with local manufacturers and Turkish aviation companies in Istanbul, the opening of the Istanbul Airshow was held on October 6, 2022, with the participation of Minister of Transportation and Infrastructure Adil Karaismailoğlu, Director General of Civil Aviation Authority Prof. Dr. Kemal



by İbrahim Sünnetçi

Yüksek, Chairman of the Board and the Executive Committee of Turkish Airlines (THY) Prof. Dr. Ahmet Bolat, CEO of Turkish Airlines Bilal Ekşi, CEO of TAV Airports Serkan Kaptan.



Ahmet Bolat, Chairman of the Board of Directors and the Executive Committee, Turkish Airlines Adil Karaismailoğlu, Minister of Transport and Infrastructure and Alişan Soylu, Head of Soylu Aviation seen in Dassault Aviation Chalet



In his speech at the opening of the 13th Istanbul Airshow, Minister Karaismaioğlu stated that he was pleased to be at the Istanbul Airshow, where developments in the aerospace industry will be discussed and which made significant contributions to the industry. Pointing out that more than US\$183 Billion has been invested in Türkiye's transportation and communication infrastructure since 2002, Karaismaioğlu said that Türkiye had become a leading global aviation center in the Eurasia region with the bridges it has built in the sky. Noting that while there was chaos at European airports due to the increasing demand after the pandemic and the intensity of summer tourism, Karaismaioğlu underlined that Istanbul Airport and Turkish Airlines

(THY) consolidated their place at the top of aviation, thanks to mega investments such as Istanbul Airport and the necessary measures taken.

Chairman of the Board and the Executive Committee of Turkish Airlines (THY), Prof. Dr. Ahmet Bolat, stated that after the pandemic, THY was among the top airlines that recovered from the

crisis in the shortest time and reached fast growth figures again. "In 2023, when we will celebrate the 100th anniversary of the Republic of Türkiye and the 90th anniversary of our partnership, we will continue to advance towards our goal of reaching the top of civil aviation by combining our knowledge from our well-established history with the dynamism of the THY Family."

CEO of TAV Airports, Serkan Kaptan, drew attention to the progress of civil aviation in Türkiye in the last 20 years and underlined that thanks to the correct policies determined by Türkiye during the COVID-19 outbreak and the solidarity and cooperation of all the players in the Turkish Civil Aviation Sector, they managed to come out of the pandemic stronger.

After the speeches, Minister Karaismaioğlu, Prof. Dr. Ahmet Bolat, and Serkan Kaptan cut the opening

ribbon of the Istanbul AirShow Exhibition. Later, Minister Karaismaioğlu, together with Prof. Dr. Ahmet Bolat and CEO of Turkish Airlines Bilal Ekşi, visited the booths of the companies and examined the mock-up of the Airbus A220-300, Embraer E195-E2, Dassault Falcon 8X, and Falcon 6X business jets and the T625 GÖKBAY Helicopter on display and received information from company officials about aircraft.

At the Istanbul Airshow, which opened its doors for the 13th time this year, European aircraft manufacturer Airbus exhibited the mid-range single-aisle A220-300 model used by airBaltic, and the Brazilian aircraft manufacturer Embraer showed the E195-E2 model. Both planes are evaluated for Turkish Airlines' regional jet needs. THY is expected to procure 30 regional jet aircraft in the future. At the fair, the world's leading business jet



manufacturers exhibited their new models, while flight schools displayed the aircraft they used and informed their visitors about the training they provided. At the Istanbul Airshow, 16 different types of aircraft, including the A220-300, E195-E2, Bombardier Global Express, Gulfstream G-500, Dassault Falcon 8X, and Cirrus Vision SF-50 business jets, as well as 5 Helicopters, including AW139, Bell 407, Bell 429, Airbus H130 and T625 GÖKBAY and AKSUNGUR UCAV. During the exhibition, Türkiye's only civilian female aerobatic pilot, Semin Öztürk Şener, also performed an aerobatic demonstration with her aircraft named Pitts S2B that captivated the audience.

During the Istanbul Airshow Fair, Keyvan Aviation signed an agreement with the world's leading avionic system manufacturer General Electric (GE) Aerospace, on October 6. With the agreement, Keyvan Aviation will



Adil Karaismailoğlu, Minister of Transport and Infrastructure visited Dassault Aviation Falcon 8X

provide the aeronautical and navigation database, analyzed and developed in line with Türkiye's National Technology Movement Strategy, to all airlines and operators using GE Aerospace's Flight Management System. On October 7, Turkish Technic signed a cooperation agreement with Elbe Flugzeugwerke GmbH (EFW), an ST Engineering and Airbus joint venture, to convert A330 Aircraft into cargo versions (P2F). According to the agreement signed

with the participation of Minister of Transportation and Infrastructure Adil Karaismailoğlu, the first A330P2F structural conversion work will be carried out in the third quarter of 2023 at Turkish Technic's facilities in Istanbul. The Sustainable Aviation Fuel (SAF) Declaration Signing Ceremony was also held on October 7, with the participation of Turkish Airlines, Rolls-Royce, and Airbus. Starting to use Sustainable Aviation Fuel actively in its operations in

2022, THY has signed the Global SAF Declaration with Rolls-Royce and Airbus, underlining the importance it attaches to the issue and commitment to maximizing the use of sustainable aviation fuels (SAF). The Global SAF Declaration expresses a collaborative effort by aerospace and fuel industry partners to decarbonize sustainable aviation fuel. The declaration aims to decarbonize sustainable aviation fuels completely.



# EFW and Turkish Technic to Collaborate on A330P2F Conversions

**Turkish Technic will be the first third party conversion house for EFW's A330P2F program**

Elbe Flugzeugwerke GmbH (EFW), center of excellence for Airbus Passenger-to-Freighter (P2F) conversions and Turkish Technic, a leading MRO company certified around the world as Part 145 and Part 21 J&G organization, announced a new collaboration in A330P2F conversions.

The collaboration will see Turkish Technic becoming the first MRO company to provide third party conversion solutions for the proven and technologically advanced A330P2F program by EFW. The first A330P2F conversion for EFW is planned to be carried out at Turkish Technic's facility in Istanbul in 3Q 2023.

"We have a growing P2F order book which mirrors a strong market demand for Airbus freighter conversions, with the A330P2F program being increasingly considered



as the preferred next-generation platform in the medium to widebody category," said Jordi Boto, CEO of EFW. "Through our collaboration with Turkish Technic, which has deep experience in maintaining Airbus aircraft, we will ensure meeting our customer commitments in a robust manner."

"As the air cargo sector is experiencing extremely strong and steady growth, conversions have become an efficient solution to meet operator's needs, thus creating an opportunity for aircraft manufacturers, MROs, airlines and leasing companies," said Turkish Technic Chairman of the Board Prof. Dr. Ahmet Bolat. "We are happy to cooperate with EFW in their A330P2F program.

Passenger-to-freighter conversions require a combination of industry-leading expertise, structural skills and operational excellence. With extensive know-how and close collaboration with suppliers, we are always well equipped to provide technical services and solutions for our customers. We look forward to expanding our partnership further with EFW."

EFW's A330P2F program is developed in collaboration with ST Engineering and Airbus, with EFW holding the Supplemental Type Certificate and leading in the overall program as well as marketing & sales efforts. The A330P2F program comes with two variants – the A330-

200P2F and A330-300P2F – which are both equipped with advanced technology that offers airlines additional operational and economic benefits. The A330-200P2F can carry a gross payload of up to 61 tons of weight to over 7,700 km, while the larger A330-300P2F can carry a gross payload of up to 63 tons and a containerized volume of up to ~18,581ft<sup>3</sup> (~526m<sup>3</sup>).

To meet the rising demand for freighter conversions, ST Engineering and EFW have set up new conversion sites in China and the U.S. in the last one to two years to ramp up total conversion capacity for all their Airbus P2F programs comprising the A330P2F, A320P2F and A321P2F.

# Airbus Attended the Istanbul Airshow with A220 and H130

Focusing on innovation and sustainability at the Istanbul Airshow, Airbus exhibited the single-aisle A220-300 Aircraft of airBaltic Airlines, which will begin flights from Istanbul to destinations abroad in April 2023, and the single-engine H130 Helicopter, a product of Airbus Corporate Helicopters (ACH), operated by Mavi Air service. The H130 was previously offered for the Turkish Land Forces' Training Helicopter Tender.

Mavi Air has signed a contract with Airbus Corporate Helicopters

to purchase 6 ACH130s (4 firm orders and 2 optional) during the Istanbul Airshow. Mavi Air will use the ACH130 helicopters to provide short flights between airports and selected hotels and sightseeing flights. The ACH130s will join the only operational H130 already in Mavi Air's fleet and help boost the company's operations in the Istanbul region. Airbus exhibited scale models of its new long-range wide-body twin-engine jet aircraft, the A350-1000, the A3300 MRTT, which

the Turkish Air Force is also interested in as part of its new generation tanker aircraft, the H130 Helicopter and the turboprop regional aircraft ATR72-600 at its booth in the indoor Exhibition Hall C1.

On October 6, the "Decarbonizing the Aviation Industry" panel was held at the fair, bringing different perspectives to the issue of sustainability in aviation and encouraging open dialogue between the audience and the panelists. At the panel, Airbus Vice President Marketing and

Sales for Northern Europe Wouter Van Wersch also shared his predictions about Airbus' sustainability roadmap. On October 7, 2022, the Head of Single-Aisle Market Development at Airbus, Claude Debeauquenne, gave a special press briefing together with airBaltic CEO Martin Gauss on the single-aisle A220 Aircraft. Later, he gave a tour of the Airbus A220 aircraft, which was exhibited in the static area, and answered the questions of the press members following the event.





The single-aisle A220 Family is designed to feel like a wide-bodied airplane. The cabin, equipped with the widest windows in its class, provides passengers with a comfortable flight experience by providing 18+ inches of comfortable seats and generous personal space. Standing out with its 25% lower fuel consumption and 50% lower noise level compared to other aircraft in its class, the A220 Family offers an ideal solution, especially for urban operations and airports with noise-related restrictions.

In the meantime, Turkish Aerospace (TUSAŞ) signed three new collaboration agreements with Airbus

in July 2022. The contract covers the production of the barrier wall of the A350F, the rear fuselage Section 18/19 of the A320 series, as well as the mid-lower fuselage panels of the A220 series. In this context, TUSAŞ will design, manufacture and be the "Single Source Supplier" of barrier walls throughout the entire program for the A350F platform, one of the newest platforms of wide-body cargo aircraft that will shape the future of air transportation from 2024. Under the agreement, TAI will also be responsible for 50% of the production and assembly of sections 18/19 of the Airbus A320 single-aisle series and will produce and deliver the mid-lower fuselage panels



of the A220 series as the "Single Source Supplier" as of 2023. Providing thousands of parts and components to Airbus platforms for more than 20

years, Turkish Aerospace's fuselage/component manufacturing projects include A350XWB fins, A330 rudder, and A320 section 18/19 parts.



## A220 Product Briefing

On October 7, 2022, Claude Debeauquenne, Head of Single-Aisle Market Development delivered a comprehensive briefing on A220 to the media representatives attended at İstanbul Airshow 2022.

In summary Debeauquenne shared following information at his presentation:

"I am very pleased to be here today in front of you at İstanbul Airshow, this year we are showcasing our latest new generation single aisle aircraft, the Airbus A220 in collaboration with our customer airBaltic.

Before giving a little update on where we are in the program, I just want to give a quick reminder about the A220 Family. Typically in the market we have large single aisle, small single aisle and regional aircraft. The large single aisle aircraft typically starting at 150 seats and then we have regional jets, typically with 100 seats and below, and this is (small single aisle) where the A220 fits into. A220 Family fills the gap between large single aisles and regional aircraft. Airbus is now the only aircraft manufacturer that can provide the full market coverage for airlines. As the only clean-sheet single aisle aircraft right sized for the 100 to



150 seat market the A220 Family complements the A320 Family.

Featuring the all-new efficient design the Airbus A220 is a family of two different variants; the A220-100 that seats between 100-120 seats, and the A220-300 (has 3.7m longer mid fuselage compared to A220-100) that seats between 120-150 seats. This is obviously a family concept with full commonality across the two variants. And the two variants will provide a step change in efficiency with 25% lower fuel burn per seat compared to previous generation aircraft and offers 32% lower trip fuel cost compared to Boeing 737-800 and A320. How did we achieve this? It's due to the new generation nature of the aircraft with state-of-the-art efficient aerodynamics, new PW1500G engines, and with advanced materials, up to 40% of the aircraft using advanced material that reducing

the weight. Flying up to 3,450nm (6,390km) the A220 provides maximum operational flexibility to the airline operators. In addition to its 50% less noise footprint the A220 also has got very good take-off and landing performance, and this makes the A220 the largest aircraft that is operating out of London city, which is a very constrained airport in terms of noise, in terms of runway length and the A220 is the biggest aircraft certified at London city today.

As of now we have an order book of 774 firm orders for the Airbus A220, we've delivered roughly 220 aircraft to our customers so that leaves us roughly 550 aircraft yet to be delivered. With 774 firm orders, this puts the Airbus A220 in a very strong position in the marketplace. With roughly 60% market share, compared to the competition on this market segment.

We also have a very diverse customer base with more than 25 customers as of now coming from every different business sector... We are obviously ready to meet this market demand with the very aggressive and a very steep production ramp-up plan that we have going from where we are today with 6 aircraft being delivered every month, going to 14 aircraft (10 at Mirabel and 4 at Mobile FAL) to be delivered every month by 2025. So, for this we have implemented a second final assembly line (FAL) in Mobile in the US in addition to the existing assembly line that we already had in Montreal (Mirabel), Canada.

2022 has been a very good year for the A220 so far. We are very happy with where we are. We have attracted more than 100 firm orders already today and there's more to come. We had renewals from existing customers such as Delta and Jet Blue. We've



delivered a few months ago the 220th Airbus A220, and last month the new service fleet of the A220 has reached an important milestone, it has reached a million, one million flight hours already today since the first flight in 2016. What does that mean for the industry? One million flight hours directly translates into over 1.4 million of CO2 savings. How did we achieve this very impressive figure? Its directly related to the new generation nature of the aircraft, with 25% lower fuel burn compared to the previous generation aircraft, which also means 25% lower CO2 emissions and this is very important. That makes the Airbus A220 the greenest aircraft in the skies today. And so, we all know why the aircraft was selected by one of the greenest airlines in Europe, airBaltic, which makes its sustainability at the heart of its company's core values.

One of the key success factors of the Airbus A220 is its range capability. The aircraft provides benefits to airlines, the flexibility to operate short in regional sectors all the way up to long range missions. So typically, from İstanbul the Airbus A220 can cover all of Europe, obviously, can cover all of the Middle East, where you can even fly over to India to cities like New Delhi or down



Claude Debeauquenne, Head of Single-Aisle Market Development, Airbus gave a speech on A220 Aircraft

to Nigeria in Africa. And those sectors can be operated from airlines as a lowest risk option. So, this is where it becomes very interesting for airlines to use these aircraft as a tool to open new routes at the lowest risk possible.

Another key success factor of the Airbus A220 is the comfort and this is something that you will be able to experience onboard this beautiful airBaltic A220, just after this briefing so if you would like to stay with us once we're done with the briefing we can walk together and experience the cabin on board, and essentially what you will see is a very spacious cabin providing similar comfort level as a passenger that you would expect with a wide body aircraft. That means very

wide seats, very, extremely large windows (the biggest windows on any single aisle aircraft, even bigger than the ones on 777, since the A220 is a clean sheet design aircraft every row has at least one window), very large overhead compartments, connectivity aspect with all the modern amenities as you would expect as a passenger.

Airbus also offers a comprehensive service support package AFHS, that stands for Airbus Flight Hour Services and essentially enables airlines to help them to start operations for the Airbus A220. And today it is very successful as a support package with over 40% of the in-service A220 fleet that operates with this support package provided by Airbus..."

## Later on, CEO Martin GAUSS came to the floor and in summary said the following:

"Thank you, it is a pleasure to be here in İstanbul, and to be able to show off our aircraft to many, many, people. We had hundreds and thousands of people going through the aircraft yesterday and today to see the aircraft live.

We were the launch operator for that aircraft type the A220-300 and today we are the largest operator of that type, with 36 of these aircraft in operation. We are also one of the airlines, which is already doing its own heavy maintenance checks on this aircraft because we have already been flying this since the beginning. We had to take some of the aircraft



Simon Ward, Head of Airbus Türkiye on board the AirBaltic A220 Aircraft

through the longer planned maintenance checks. So, 6 years the aircraft is with us, and if you now say so as an airline, we have already some feedbacks from other customers, our potential customers, could you tell somebody about it, and we have the numbers here.

We have carried 9.6 million passengers just on the Airbus A220s. So, we have at least 6 years we have carried millions of our passengers on the aircraft. We have flown on airBaltic alone 111,000 flights on that aircraft, so we have been all around the world and we are using this aircraft every day. We have today 36 as I said, but we will be getting 3 more this year and then another 10 in the next one and a half years, so we will have 50 firm orders, and we've decided that we need many more, and will also be working now to execute options which we have that will take us to 80 aircraft.

Our history, we have all different kinds of aircraft. We had Boeing 737, we had Q400 fleet, and we decided after we used the Airbus A220 because of the success we had with the aircraft that we would change all of our aircraft to the Airbus A220 fleet. We took that decision ahead of schedule and then the COVID came, because then we had the time and had to accelerate the change, and since 2020 the airBaltic flies the Airbus A220, and all of our aircraft come in the same configuration so the aircraft which is here is the same as the aircraft in our fleet...

We also at airBaltic are flying a lot of new routes we will be opening İstanbul as a route from Riga next year in April and what we did now was we looked at this route if we would have flown it with the previous Boeing 737 aircraft with the same seats on board and these

are the real numbers if we fly this route on the A220-300 the flight times is 3 minutes less so it's more or less the same, but the fuel burn is the same, passengers are the same, the same weight, the same conditions, is calculated to be around 1,800kg less and this is on one sector so its similar on the way back. And the fuel savings in today's fuel price, the cash savings for the airlines only on fuel, there's other savings, is US\$1,974 that's today's fuel price but you also have savings because you can fly higher, you fly a bit faster and the aircraft is not as heavy, so there's much more savings, but that's a pure cash savings if we fly with that aircraft or would fly with the 737...

And then looking at the seat cost it reduces by 24% and the cost pressure airlines today have is a very significant number and from a commercial point of view of course if

you have such an aircraft you would like to fly this because you will be saving cash. The reduction per seat, so that's statistically from what we had in our fleet, since we have the A220 we are saving up to a certain percent of cost because we had 737-300's and 737-500's before, so, pretty impressive and our cost of flying this aircraft has significantly reduced and it was and was part of the success overall."

Following the briefing the Q&A Session was held and Head of Single-Aisle Market Development Claude Debeauquenne answers questions of media representatives. Answering our question on whether Airbus is in talks with THY on A220, Debeauquenne said, "Well thank you for the question. So, obviously as a leading aircraft manufacturer we are always in discussions with all our customers around the world and Turkish Airlines (THY) is a special customer with us, we have a long-standing relationship for 40 years, so that's obviously a customer that we always talk to. Now in terms of ongoing discussions that's not something that we would like to comment on but what I can just tell you we, from our perspective, we see a very good fit the Airbus A220 to Turkish Airlines fit, but that is not something for me to comment on..." 



# Turkish Airlines signed Global SAF Declaration

Turkish Airlines signed Global Sustainable Aviation Fuel Declaration with Rolls-Royce and Airbus at Istanbul Airshow. Levent Konukcu, Turkish Airlines Chief Investment and Technology Officer, Matt O'Connor, Rolls Royce Civil Aerospace Vice President and Simon Ward, Airbus Turkey President took place in the ceremony.

Turkish Airlines continues its support for the development of Sustainable Aviation Fuels which play a key role in reducing carbon emissions. Starting to actively use Sustainable Aviation Fuel during its operations as of 2022, Turkish Airlines emphasized the importance of the matter for the company by signing Global SAF Declaration.

Global SAF Declaration represents collaboration between aviation, aerospace and fuel partners to decarbonize sustainable aviation fuel. The aim of the declaration is to completely decarbonize sustainable aviation fuels.

Turkish Airlines plans to increase SAF usage to the highest levels in line with the technical, regulatory, safety and financial feasibility.

On the matter, Turkish Airlines Chief Investment & Technology Officer Levent Konukçu stated: "Reducing its emissions significantly with the inclusion of



new generation aircraft to its fleet, operational optimizations and high-level fuel saving applications, Turkish Airlines will continue its support and investment to sustainable aviation fuels."

Chief Commercial Officer and Head of Airbus International, Christian Scherer said: "Airbus is fully committed to developing a sustainable aviation industry, across the value chain, that will reduce the environmental impact of flying. The Declaration supports exactly that and today, Turkish Airlines has responded to the call to join this initiative, signing up to work with all the stakeholders in our journey towards zero emission aircraft. I am proud that Türkiye is demonstrating their commitment in this endeavor."

Rolls-Royce Chief Technology Officer Grazia

Vittadini stated: "Working together with our industry partners across the value chain to encourage the uptake of Sustainable Aviation Fuels is a key part of the Rolls-Royce sustainability strategy. We welcome Turkish Airline's commitment to signing the SAF Declaration and for its support of this important initiative. By signing this agreement, the airline has also given a clear signal that Türkiye is fully behind driving the momentum and collaboration necessary for a successful transition to a more sustainable future for global aviation."

Starting to use sustainable aviation fuel for the first time in 2022 on the Istanbul Airport - Paris Charles De Gaulle route, Turkish Airlines extended this usage to its Paris, Oslo, Gothenburg, Copenhagen, London and Stockholm for one day of every week. Global airlines

intend to increase the frequencies and destinations served with sustainable aviation fuel in the future. Also, sustainable aviation fuel records up to 87 percent decrease in green house gas emissions compared to traditional kerosene fuel.

Additionally, Turkish Airlines cooperates with universities to support biofuel research and development in order to reduce the fossil fuel usage in aviation. In this regard, Microalgae Based Sustainable Bio-Jet Fuel Project (MICRO-JET) project is being conducted with Boğaziçi University and supported by TUBITAK (The Scientific and Technological Research Institution of Türkiye). After the successful conclusion of the project, aim will be to use this biofuel, which will be obtained from sustainable sources in our flights after the engine tests carried out by Turkish Technic in 2022.



## SalamAir, Oman's Low-Cost Carrier, Selects the Embraer E195-E2 for Next Stage of Growth

SalamAir has signed a firm order with Embraer S.A. ("Embraer") for six E195-E2, with options for a further six aircraft at Istanbul Airshow. The E195-E2, the quietest and most efficient aircraft in its class, will be delivered in a comfortable dual class configuration with 135 seats, beginning at the end of 2023. The deal, which will be added to the Q3 backlog, is valued at US\$934.6 million, at list price with all options exercised. The Muscat based low-cost carrier has opted for the E195-E2 to join and complement their all Airbus

narrowbody fleet for the benefits and flexibility right-sizing provides; protecting yields while growing frequencies, and developing new markets and city pairs profitably. Captain Mohamed Ahmed, CEO of SalamAir, said, "The aircraft will grow to be a core part of our fleet portfolio. It is exhilarating for us to be the first airline in the Middle East to fly the incredible E195-E2. Embraer's aircraft represents the best environmental efficiency, operating performance, and passenger comfort. The

aircraft's sophisticated aerodynamics, novel wing design and new technologies enable its exceptional energy efficiency. These aircraft are perfect for the next frontier of our growth. They will allow the airline to open new local and regional cities and increase its frequency to these destinations due to its fuel efficiency and capacity, which suits the needs of these markets. The new fleet will be used on domestic flights initially, including the 4 oil fields and 4 international airports within Oman, as we receive more

aircraft we will be able to use them on regional airports in neighbouring countries which today are not connected to Oman. Arjan Meijer, President and CEO Embraer Commercial Aviation, added, "It's great to be growing in the Middle East, a region that has often focused on long-haul travel. For Embraer it is also important to see a pioneering low-cost carrier like SalamAir recognize the value that E-Jets deliver in the LCC scenario, complementing larger narrowbodies to grow and maintain networks."

# Keyvan Aviation Inks Cooperation Deal with GE Aerospace

Providing the first and only approved aviation and navigation database service in Türkiye and the fourth in the world, Keyvan Aviation signed an agreement with the world's giant avionic system manufacturer General Electric (GE) Aerospace. The opening speech of the signing ceremony held at the 13th Istanbul Airshow was delivered by the Acting Director General of DGCA, Prof. Kemal Yüksek. Keyvan Aviation will offer the aeronautical and navigation database, analyzed and developed in line with Türkiye's National Technology Movement Strategy, to all airlines and operators using GE Aerospace's Flight Management System.

In his speech at the signing ceremony held at the 13th International Civil Aviation & Airports Exhibition & Aviation Industry Supply Chain Platform (Istanbul Airshow 2022), Keyvan Aviation CEO & Founder Mehmet Keyvan said, "We consolidated our position among the countries providing a certified aviation and navigation database by getting approval from EASA in February 2022. We are shaking hands with GE Aerospace to serve all airlines and operators using GE Aerospace's Flight Management System. We



offer competitive pricing, better payment method, 24/7 customer service, and tailor-made solutions for every need without being limited to the required standards. We aim to contribute to the local economy by supporting Türkiye-based airlines and operators, as well as civil and military helicopter and aircraft operators with local products and services, and to bring export income to our country by offering our services to other countries. Having a certified training system enables us to prepare our work at the highest standards worldwide."

Tawfic Hammad, Commercial Director, GE Aerospace EMEA, said, "We are happy to cooperate with Keyvan Aviation and to support the efforts

to create innovative navigation database capabilities for the Turkish aviation industry. I would like to thank Keyvan Aviation CEO & Founder Mehmet Keyvan and his entire team for their excellent efforts in this process. We wish Keyvan Aviation great success in the future and hope that our business relationship as Keyvan and GE Aerospace will continue for many years."

The 'navigation database,' which was processed by KEYVAN Aviation and required extensive R&D, contains more than 26,000 airports, 33,000 runways, airlines, navigational aids, waypoints, and procedures, and restricted and prohibited areas. Data processing and quality controls are carried out according to the

international standard ED-76A (DO-200B) and ED-77 (DO-201B), while data requirements are provided in accordance with EU Regulation 2017/373 and EASA Type 1 DAT Provider Certificate, which only 4 companies in the world have. Keyvan Aviation implements Data Quality Requirements (DQR) and Aviation Information Processing Procedures to process the data and create the final version of the ARINC 424 database. Each update goes through the quality system to ensure it meets EU Regulation 2017/373 as well as RTCA DO-200 and EUROCAE ED-76, and the final result contains the most up-to-date, complete, and reliable information available according to government publications.

## Start-up Mavi Air Orders four ACH130s to Increase its Operations in Türkiye

Mavi Air, the new start-up company of Turkish aviation founded by Alex Sahni, has signed a contract with Airbus Corporate Helicopters to purchase 6 ACH130s (4 firm orders and 2 optional) during the Istanbul Airshow.

Mavi Air will use the ACH130 helicopters to provide short flights between airports and selected hotels and sightseeing flights. The ACH130s will join the only operational H130 already in Mavi Air's fleet and help boost the company's operations in the Istanbul region. The company is scheduled to start shuttle services on October 9, 2022, using the H130. The shuttle services begin this month using the H130.

Mavi Air founder Alex Sahni said, "The sharp increase in inbound tourism indicates that a helicopter service will bring real added value to Türkiye's ambitious growth plans. Our shuttle services will start from Istanbul, and we will



expand our operations to numerous destinations in Türkiye with the delivery of our new helicopters. The ACH130 will meet the demanding requirements of our customers by offering a safe, quiet and comfortable flight experience. In the future, we aim to implement green technologies such as Sustainable Aviation Fuel (SAF) and electric propulsion as they become available for commercial operations."

Airbus Helicopters' Head of Zone for Turkey & Caucasus adds, "We are delighted that Mavi Air has chosen the ACH130 to grow its on-demand shuttle service. The infrastructure and the business model that Mavi Air has created could pave the way for future Urban Air Mobility operations in Türkiye."

The flexible, multi-purpose rotary wing ACH130 is an intermediate single-

engine helicopter tailored specifically for passenger transport, sightseeing, and VIP duties. Thanks to its spacious cabin, it can carry 1 pilot and up to 6 passengers.

Thanks to Airbus' Fenestron shrouded tail rotor and automatic variable rotor speed control, the ACH130 is 6 dB below international ICAO limits, making it the quietest helicopter on the market in its category.



## **airBaltic** Showcases A220-300 at Istanbul Airshow Together with Airbus

**The Latvian airline airBaltic, together with Airbus, took part in Istanbul Airshow 2022 to showcase its latest A220-300 aircraft. During the airshow, the airBaltic and Airbus teams presented the aircraft, its interior and capabilities to customers, international media and public.**

Martin Gauss, President and CEO of airBaltic: “airBaltic has been the launch operator of this aircraft type, and over the years, we have received an overwhelmingly positive feedback from our passengers, crews and guests who have been on this aircraft. airBaltic is a proud ambassador of this

aircraft and the features it brings, so we are glad to be in Istanbul this week and showcase this state-of-the-art aircraft together with our partners at Airbus.”

Thus far, airBaltic has carried more than 9.6 million passengers on the Airbus A220-300 aircraft. Airbus A220-300's have completed more than 111 000 flights and flown over 243 000 block hours.

Since May 2020, airBaltic operates all its flights with a single aircraft type – Airbus A220-300, thus minimizing the complexity and benefiting from the additional efficiency provided by the aircraft. The airline's fleet now consists of 36 A220-300

aircraft with three more still planned to join in 2022.

The Airbus A220-300 has performed beyond the company's expectations, delivering better overall performance, fuel efficiency and convenience for both passengers and the staff. This aircraft offers an excellent flying experience with such benefits for passengers as wider seats, larger windows, more hand luggage space in the cabin, improved lavatories and much more.

The Airbus A220-300 has a high-quality air filtering system equipped with High Efficiency Particulate Air (HEPA) type filter that provides the best level of filtration currently

available for recirculated cabin air from the very beginning of boarding, during entire flight and until all passengers have left the aircraft. The quality of cabin air is carefully controlled and is recirculated with ventilation rates that provide a total change of air 20-30 times per hour.

In addition, the aircraft is also considerably quieter – with a four times smaller noise footprint. Moreover, at the moment it is the greenest commercial aircraft in the world, as it is the first aircraft to have a transparent declaration of the life-cycle environmental impact, helping to reduce CO2 and NOX emissions by 20% and 50% respectively.

# Book Introduction: Ottoman Air Force: Major Erich Serno and Mission Report

(translated and annotated by Emir Öngüner, Emin Kurt)



by Dr. Emir Öngüner  
Freelance Researcher in  
Aviation History

The First World War lasted for four years and witnessed numerous conflicts with land, naval, and air platforms on several fronts. As a result of the cooperation with the German Empire within the framework of the German Military Mission, the Ottoman Empire received support from German officers for the modernization of its army. One of the fundamental pillars of this support, which has not been emphasized much until now, is military aviation. Erich Serno, one of the officers from Germany, left a significant impact on the course of the war as the Commander of the Ottoman Aviation Squadrons, which he assumed in 1915 after his duty as the Director of Ayastefanos (Yeşilköy) Aircraft School. Serno's post-war reports covering 1914-1918 were translated into Turkish for the first time by us and interpreted and annotated with various sources.

He was born in Büchow-Jüterbog in 1886. In 1906, he started to serve as a Lieutenant in the Prussian Army in Kolmar. In 1911 he was sent to Berlin to



receive flight training and was awarded the German aviators' certificate and Prussian military pilot's badge in 1912. He was appointed to the flight unit in 1913 and commanded the aviation squadrons established at Döberitz and Metz. He was rewarded by the Crown Prince of Prussia for his success in the air exercise in Austria in 1914. When World War I began, he conducted one

of the first reconnaissance flights on Germany's western front. He was sent to Türkiye within the framework of the Ottoman Military Mission at the end of 1914 and was appointed to the Yeşilköy Air Base in February 1915. On March 18, 1915, before the naval operations, he conducted a reconnaissance flight off the coast of Çanakkale with Lieutenant Commander

Karl Schneider. He was appointed as the commander of the Ottoman Air Force on November 1, 1915. In 1916, he was briefly tasked with reforming the aeroplane section of the Bulgarian Army. He was promoted to Major in 1917. After being assigned to Germany for seven months in 1918, he personally took part in all fronts as a member of the Ottoman Army and participated in some operations as a pilot. He received many medals and awards for his achievements, and after the armistice, he returned to Germany. He became a civilian after the war and worked as a manager in companies such as Aquila, Arado, and AEG in Germany. Following the Second World War, he moved to West Germany with his family and began to write his memoirs in 1958. He died in 1963.

Introduction letter by Prof. Gültekin Yıldız, Dean of the Military Academy of the National Defense University:

*Since the last quarter of the 19th century, when it was decided to reform the Ottoman Army like its*

European counterparts, military relations between Prussia and the Ottoman Empire gained momentum, as did other European states. German infantry and artillery officers were among the first foreign advisers of *Asâkir-i Mansure-i Muhammediye* (The Mansure Army/The Victorious Soldiers of Muhammad), which was established with the abolition of the Janissary Corps in the middle of 1826. Captain Helmut K. B. von Moltke, who would later rise to the position of Chief of the General Staff in Germany, was one of them. After the establishment of German political unity and the victory of the German Army against France, the Ottoman government, like many other states, chose the German Army as a model for its land forces. While the German generals and officers restructured the organization and training of the Ottoman land forces, weapons and ammunition imports from Germany also increased significantly. The Turkish-German military affinity, which became evident during the reign of Sultan Abdülhamid II, continued in the following Second Constitutional Era and turned into a friendship in arms with the start of the First World War in 1914.

During the World War, which was called the "Great War" at that

time, German officers were appointed to the commanding positions of the Ottoman General Staff and large units for the first time. German experts took part in numerous technical matters, from the management of the military logistics system to the manufacture of ammunition, from the reinforcement of the military fortifications to the management and administration of the air force.

The book in your hand brings to light the report of Major Erich Serno, who led the Ottoman Air Force, which was established at almost the same time as its counterparts in the world, on his mission to Türkiye, as well as flying with a crescent and star badge in the First World War. Major Serno took command of the Ottoman Aviation Squadrons throughout the war, except for a brief time when he served on the European Eastern Front, and he carried out important activities for the development of Ottoman aviation and increasing its effectiveness on the fronts.

Although Serno's mission report was previously published in foreign history journals, it was not published in Turkish. Some foreign publishers did not remain faithful to the original report of Serno's mission, and



Major Erich Serno, Commander of the Ottoman Air Force  
(İclal & Tunca Örses Special Collection)

their publications also required a full-text Turkish translation. Turkish military aviation history researchers Emin Kurt and Emir Öngüner, who jointly undertook to publish Serno's mission report, which is a crucial shortcoming for the contemporary Turkish military aviation history literature, not only translated the original text into Turkish but also created a critical publication by commenting and criticizing some of Serno's statements with the footnotes they added to the text.

I sincerely congratulate our colleagues and the Kronik Kitap publishing house for publishing this first-hand text about the establishment period of Turkish military aviation and our aviation activities in the First World War, and I hope that this book will be evaluated appropriately by our military history researchers.

From the publisher's newsletter:

The Turkish-German military affinity, which started in the 1830s and became evident during the reign of Abdulhamid II, continued in the Second



The back cover and the publisher's introductory letter

the commander of the Ottoman Air Force.

Except for a brief time when he served on the European Eastern Front, Major Serno carried out important activities for the development of the Ottoman Air Force, which was established at the same time as its peers in the world, and to increase its effectiveness on the fronts. In addition to flying with a crescent and star badge in the First World War, he also led the Ottoman Air Force.

Major Erich Serno's personal file from the German Military Archive (Bundesarchiv-Militärarchiv), which is included in the book "Ottoman Air Force," contains photographs taken in Türkiye, his mission report, and memories of his flight training in Germany. Providing important information about Turkish military aviation, Serno's report is published in Turkish for the first time.

Translated from the original text in German by aviation experts Emir Öngüner and Emin Kurt, who added rich footnotes and compared them with Turkish sources, the "Ottoman Air Force" is a primary source for aviation activities in the First World War as well as the establishment period of Turkish military aviation.

Constitutional Era and turned into a friendship in arms with the start of the First World War in 1914. During the World

War, which was called the "Great War" at that time, German officers were appointed to the commanding positions

of the Ottoman General Staff and large units for the first time. Major Erich Serno was one of them and was appointed as



# AVIATION HISTORY WITH **AVIATION** TURKEY

## New Destination From Corendon Airlines: INDIA

With the end of the summer season, Corendon Airlines has sent a total of seven TC tail code aircraft from its fleet, five of which are Boeing 737-8 (MAX) and two of which are Boeing 737-800, to the low-cost airline SpiceJet in India for wetlease operation.

Corendon Airlines Commercial Director Mine Aslan noted that, according to the agreements between Corendon Airlines and SpiceJet, which have been carrying out wetlease operations together for six years, the operation

started in mid-October and will continue until April.

The Wetlease operation means that an airline charts its aircraft to another airline with its crews for a short time during the low season. Corendon Airlines has been collaborating with Spice Jet for many years, as the low season in Turkey and Europe and the high season in India are entering. Mine Aslan stated that wetlease operations are very important in terms of the use and continuity of airlines' resources, and



that an airline's chartering of aircraft in low season to another airline in high season helps to balance the annual usage of the aircraft.

Corendon Airlines will

assign 35 captain pilots, 35 co-pilots and 140 cabin crew to India every month, along with seven aircraft, for the wetlease operation to be continued for six months.

## Collins Selected to Participate in Multiple EU Clean Aviation Projects

Collins Aerospace has been selected to participate in seven projects under the European Union's Clean Aviation Joint Undertaking. As part of the initiative, Collins will collaborate with European airframers, engine makers, suppliers and academia to develop disruptive sustainable aviation technologies. The company estimates that the funding it receives from Clean Aviation combined with its own R&D investments will reach €85 million.

"With our expertise in a broad range of aircraft systems and a strong research and engineering presence in Europe led

by our Applied Research and Technology (ART) organization, Collins is well-positioned to support the EU's ambitious Clean Aviation goals," said Mauro Atalla, senior vice president, Engineering & Technology for Collins. "Together with our industry partners, we will advance our shared commitment to net-zero flight by breaking new ground on a range of solutions critical to the next generation of sustainable aircraft—from hybrid-electric propulsion, to thermal management, to systems for novel wing designs."

Pulling together the best talent and capabilities

of the private and public sectors, the Clean Aviation Joint Undertaking is the European Union's leading research and innovation programme for transforming aviation towards a sustainable and climate neutral future. Projects that involve UK sites will be supported by funding from UK Research and Innovation, working in concert with Clean Aviation.

Collins will participate in below projects and will serve as project coordinator for HECATE.

Hybrid-Electric Powered Aircraft; HE-ART (Hybrid-Electric propulsion system for regional Aircraft), TheMa4HERA (Thermal

Management for Hybrid-Electric Regional Aircraft), HECATE (Hybrid-Electric regional Aircraft distribution Technologies), HERWINGT (Hybrid-Electric Regional Wing Integration Novel Green Technologies)

Ultra-Efficient Short & Medium Range Aircraft; SWITCH (Sustainable Water-Injecting Turbofan Comprising Hybrid-electrics)

Transversal Areas; HERA (aircraft concepts for Hybrid-Electric Regional Aircraft), CONCERTO (Construction Of Novel CERTification methOds and means of compliance for disruptive technologies)



# Dassault Systèmes Accelerates the Development of Blue Spirit Aero's Hydrogen-Powered Aircraft

Dassault Systèmes announced that Blue Spirit Aero, the France-based aviation startup harnessing the power of hydrogen fuel cell technology, is using Dassault Systèmes' 3DEXPERIENCE platform on the cloud to accelerate the development of its hydrogen-electric light aircraft and advance the certification of accessible clean aviation.

The aircraft, "Dragonfly," which relies on Blue Spirit Aero's proprietary electro-propulsive technology optimized for clean performance, is being developed with a view to certification and entry into service in 2026. In only a few months, Blue Spirit Aero has used Dassault Systèmes' "Reinvent the Sky" industry solution experience based on the 3DEXPERIENCE platform to complete the detailed 3D design of Dragonfly's shapes, and test and validate its performance in terms of aerodynamics, structure and energy. From the outset, the platform's

virtual environment on the cloud enabled the startup to structure its internal processes and streamline communication between experts across disciplines and locations for more efficient decision-making and full traceability.

"The 3DEXPERIENCE platform is the technology of reference in the aviation industry," said Olivier Savin, CEO and founder, Blue Spirit Aero. "By using it to develop our aircraft from concept to certification, not only are we relying on one platform for all aspects of our product development, we are giving credibility to each milestone achieved. We can show potential investors, partners, employees, suppliers,

customers, and regulators that viable hydrogen solutions are being developed with the same software that has made the most technologically advanced commercial airliners possible."

The global aviation industry is striving to achieve net-zero carbon emissions by 2050. Transforming technological breakthroughs into real solutions requires new ways of working that combine the expertise of stakeholders and enable efficient certification processes. Regulators are working to establish certification processes for solutions involving disruptive hydrogen technologies. Blue Spirit Aero will be a

catalyst in this by using the 3DEXPERIENCE platform to demonstrate the feasibility of these solutions.

"Blue Spirit Aero exemplifies a dynamic startup driving the hydrogen economy that shares our vision for more sustainable aviation," said David Ziegler, Vice President, Aerospace & Defense Industry, Dassault Systèmes. "Reinvent the Sky' and the scalability offered by the cloud allow it to deploy new capabilities as its project matures, optimize program execution, and reduce costs. These are 'must-haves' for a startup paving the way toward the certification of a new category of vehicles."



# IGA Istanbul Airport Activated the Routing Service (Level 3) at A-SMGCS System

The world's most important global hub, iGA Istanbul Airport, activated a new level of its pioneering application, Advanced Surface Movement Guidance and Control System (A-SMGCS), developed in line with its digitalization strategy. "Routing Service", the new level of A-SMGCS technology, provides automatic routing functionality for all aircraft and vehicles on airside operations, delivering an advanced situation awareness and enhanced operational control.

Integrating the latest technology in the aviation industry into the current applications and procedures is becoming increasingly crucial in order to make an airport more sustainable. iGA Istanbul Airport carries out the required planning by optimizing the needs of all stakeholders, such as joint projects with airlines, airports, aircraft manufacturers and the appropriate sub-groups for the sector's dynamic structure, as per the Eurocontrol specifications, accurately meeting the Eurocae performance criteria, and following the rules of



national and international organizations.

Aiming to maximize the current runway and taxiway capacity while maintaining maximum safety with increasing air traffic, iGA Istanbul Airport announced the activation of the first application in the world, the "Routing Service

(Level 3)" of the Advanced Surface Movement Guidance and Control System (A-SMGCS) technology.

Deputy General Manager of the State Airports Administration (DHMI) Dr. Cengiz Paşaoğlu, EC-DG MOVE General Manager Henrik Hololei, SESAR JU Executive

Director Andreas Boschen, Eurocontrol DG Advisor Haydar Yalçın, AHEN and SAAB officials were among the guests who attended the launch, presented by iGA Istanbul Airport Deputy General Manager Chief Planning Officer and Eurocontrol PRC Member İsmail Hakkı Polat.



# Introduction of PW1100G-JM Engine at MTU Maintenance Zhuhai Successfully Concluded



MTU Maintenance Zhuhai has received CAAC approval, marking the final step in the introduction of the PW1100G-JM engine to that facility on Zhuhai, November 9, 2022. EASA and FAA certification had already been issued for this engine type. Necessary special procedures such as grinding and balancing were also introduced. This means that Zhuhai is now the third facility in the MTU network that is able to perform disassembly, assembly, and test of PW1100G-JM engines. This expansion of the MRO portfolio is an excellent basis for the site's further growth and success.

"We're really proud to be the first shop that provides PW1100G-JM MRO services in China, so we can play an important role in increasing worldwide MRO capacity for this engine type. We can now serve the market even better as an OEM partner while also forging ahead with our own growth strategy," explains Gert Wagner, President & CEO of MTU Maintenance

Zhuhai. "As a reliable partner within the OEM network, we are looking forward to performing high-quality services for this engine type."

The capacity ramp-up is already in full swing. The first milestone, the delivery of the tenth engine of this type, has already been achieved. At the same time, the location has managed to significantly reduce turn-around times.

"Expanding our MRO portfolio to include the PW1100G-JM has given us access to a significant forward-looking program and innovative MRO processes. This further strengthens our technological know-how and will allow us to continue to set standards for more efficient and innovative maintenance into the future," adds Michael Vos, Senior Manager System Engineering, who was in charge of the Geared Turbofan (GTF) ramp-up at MTU Maintenance Zhuhai.

One particular challenge in

introducing the PW1100G-JM engine at the Zhuhai location, which began in January 2020, was that all of the approval processes had to take place remotely due to the coronavirus pandemic and its associated travel restrictions. Many other processes within the project were also supported remotely, including the set-up of the FOS (fixed overhaul system), which is used for disassembly and assembly of the engine. Even with all these factors in play, the process went smoothly thanks to the efficient transfer of existing expertise and the outstanding cooperation between the various MTU locations and within the GTF network.

MTU Maintenance Zhuhai, a joint venture between MTU Aero Engines and China Southern Airlines Ltd., has been reliably working on V2500 and CFM56 engines for nearly 20 years now and also added LEAP engines to its portfolio in 2019. The site is located in the Zhuhai

Free Trade Zone, where it benefits from its proximity to Hong Kong, Guangzhou, Shenzhen, and Macao. In addition to China Southern, MTU Maintenance Zhuhai serves over 90 customers from China, elsewhere in Asia, and all over the world, including International Aero Engines, Saudia Airlines, and All Nippon Airways along with Chinese carriers Sichuan Airlines, Xiamen Airlines, and Hainan Airlines.

MTU Maintenance Zhuhai is currently constructing an additional facility in the neighboring Jinwan District. This location will focus on PW1100G-JM engines and feature a test cell with 60,000 pounds of thrust. The shop is expected to begin operating in 2025. At full capacity, about 600 trained employees will work there and it will be able to perform 260 shop visits per year.

In addition to MTU Maintenance Zhuhai, the PW1100G-JM program is also served by MTU Maintenance Hannover and EME Aero in Poland.

## Rolls-Royce and Gulfstream Give Wings to Sustainable Aviation

Rolls-Royce and Gulfstream Aerospace are conducting the first original equipment manufacturer test flight of an ultralong-range business jet powered by 100% Sustainable Aviation Fuel (SAF).

The test took place on the BR725-powered Gulfstream G650 twin-jet over Gulfstream's headquarters in Savannah, Georgia.

Demonstrating that current Rolls-Royce engines for business jet and large civil applications can operate with 100% SAF as a full "drop-in" option, this test lays the groundwork for moving this type of fuel towards certification. At present, SAF is only certified for blends of up to 50% with conventional jet fuel and can be used on all current Rolls-Royce engines.

The SAF that was used in the test consists of two components: HEFA (Hydroprocessed Esters and Fatty Acids), produced from waste fat and waste plant oils by low-carbon fuel specialist World Energy in Paramount, California, and (SAK) Synthesised Aromatic Kerosene made from

waste plant-based sugars by Wisconsin-based Virent Inc. This innovative and fully sustainable fuel in development eliminates the need for the addition of further petroleum-based components and enables a 100% drop-in SAF that can be used in existing jet engines and infrastructure without any modifications. This sustainable fuel has the potential to reduce net CO2 lifecycle emissions by about 80% compared to conventional jet fuel, with the possibility of further reductions in future.

The BR725-powered G650 aircraft family holds more than 120 world speed records, including the speed record for the farthest flight in business aviation history. With more than 500 aircraft in service, the G650 and its sister aircraft, the Gulfstream G650ER, prove they are among the most trusted business jets in the world. Since its entry into service in 2012, the G650 aircraft family has established a reputation for excellent reliability, efficiency, and speed, combined with outstanding environmental performance.



## 35 Years of Non Stop Operations

Singapore Airlines celebrates the 35th anniversary of its operations between Singapore and Türkiye this year.

The first flight of Singapore Airlines to Istanbul Atatürk Airport took place on 29 October 1987. This flight carried the slogan 'Singapore Airlines will be the first Southeast Asian Airline to fly where East meets West'. These flights helped to establish the first permanent relations between Türkiye and Singapore in terms of tourism, culture, economy and politics.

Singapore Airlines started its flights in 1987 with the Boeing 747-SUD and later made many flights with the B747, B772, B773 models. As of December 1, 2019, it continues its flights between Istanbul and Singapore 4 times a week with the A350 - 900, which is the most modern aircraft model in its fleet. SIA Group has one of the youngest and most fuel efficient fleets with an average age of 6 years and 3 months.

In 1987, Singapore Airlines flew to Istanbul from various and varying intermediate destinations such as Frankfurt, Manchester, Dhahran, Dubai and Athens, respectively. Since 2010, it has started to operate direct flights between Istanbul and Singapore.

Singapore Airlines, which has not left Türkiye under any circumstances for 35 years, plans to continue to be the cultural, commercial and humanitarian bridge between Türkiye and Singapore.



## Electric Aircraft Alice – Maiden Flight for Greener Air Freight

Once there was the dream of flying: it has come true. Today, it is the dream of sustainable flying. With the all-electric cargo aircraft Alice, Deutsche Post DHL Group is one step closer to this vision – and thus also to its own goal of reducing all logistics-related emissions to zero by 2050. Twelve of the state-of-the-art Alice e-cargo aircraft will routinely take off for DHL Express in the near future.

The Evolution of Air Transport: A Success Story, but with an Ecological Snag

At the beginning of the 20th century, the great hour struck for the pioneers of motorized aviation. Some 120 years after their first successful maiden flights, the dream of flying has turned into an integral part of our everyday culture. For many people, flying for private travel is affordable – and it is impossible to imagine international freight traffic without air freight.

But this also has its downsides: According to an international study from 2020, global air traffic is responsible for 3.5 percent of man-made climate change – that sounds like little, but it's a lot when you consider the comparatively small share of aircraft in total global traffic. From 1940 to 2018, the aviation industry emitted about 32.6 billion tons of CO<sub>2</sub>. The problem is: about half of these total emissions were caused in the last 20 years of the period covered by the study alone, due to the increase in air traffic. The time to act is now.

Since a lot of energy is needed to get a plane into the air and keep it moving there, it is also much more difficult to develop sustainable and electric aircraft engines than it is, for example, for a passenger car. Nevertheless, creative minds are setting about this task – and with obvious success.

US-Israeli aviation company Eviation Aircraft has successfully launched Alice, the first all-electric commuter aircraft: Alice took off from Moses Lake in the US state of Washington in late September 2022, completing an eight-minute maiden flight and reaching an altitude of 3,500 feet (about 1,100 meters).

DHL Express invested in the electric future of aviation at the beginning of August 2021, becoming the first company in the world to order twelve Alice e-freight aircraft from Eviation Aircraft. With this forward-looking collaboration, at Deutsche Post DHL Group the age of electric air freight has already begun now. Alice is ideal for feeder flights and can be operated by a single pilot. The all-electric low-wing aircraft can be deployed wherever aircraft with conventional engines

are in use today. And it is also cost-efficient, because the innovative electrical propulsion system is not only reliable but also low maintenance.

The Alice aircraft are a unique and sustainable solution for DHL's global air transport network and also fit perfectly with DHL Express' ambitious time targets: the aircraft's batteries can be recharged while the freight is being handled. So no time is lost.

Alice is an important component for DHL Express in the creation of the first electric express network. Delivery of the aircraft is scheduled to begin in 2024. This will mark two milestones at once: one on the way to Deutsche Post DHL Group's zero emissions target, another in the development of aviation in general.



## Croatia Airlines Signs Firm Order for Six A220 Aircraft

Croatia Airlines, Croatia's national flag carrier based in Zagreb, has signed a firm order for six A220-300 aircraft. Croatia Airlines plans to lease an additional nine A220s, taking its total commitment for the type to 15.

The A220s will replace previous generation aircraft in the company's fleet, reducing operating costs as well as improving environmental efficiency and competitiveness while offering passengers unrivaled comfort throughout its fleet.

Today's signing of a contract for the purchase of state-of-the-art Airbus aircraft is a very special moment for all of us at Croatia Airlines. It marks the beginning of a new period of aviation, a

new period in the life of Croatia Airlines, a new period for our passengers, and a new period for Croatia's tourism and economy as a whole," said Jasmin Bajić, CEO and President of the Management Board of Croatia Airlines.

"We are thrilled to add Croatia Airlines as a new A220 customer. The A220 is ideally suited to Croatia's aviation needs, providing operational flexibility and efficiency allowing its airline to pursue its ambition for both regional and international connectivity without compromising on any aspect, be it passenger comfort or trip and seat cost economics," said Christian Scherer, Airbus Chief Commercial Officer and Head of International.

The A220 is a clean sheet design and the only aircraft purpose-built for the 100 to 150-seat market segment bringing together state-of-the-art aerodynamics, advanced materials and Pratt & Whitney's latest generation GTF™ engines. The A220 delivers a 50% reduced noise footprint, up to 25% lower fuel burn per seat and CO2 emissions - compared to previous generation aircraft, as well as around 50% lower NOx emissions than industry standards.

Airbus and Croatia airlines have had a long-standing partnership starting 25 years ago, when the airline first became an Airbus operator. Today, the Croatian carrier operates an Airbus fleet of seven single-aisle aircraft from

the A320 Family (five A319s and two A320s).

With currently more than 230 A220s delivered to 16 airlines operating on four continents, the A220 is the optimal aircraft for regional as well as long-distance routes and will enable Croatia Airlines to further contribute to the development of tourism in the region, while providing flexibility to right-size their operations.

To date, more than 70 million passengers have enjoyed the A220. The fleet is currently flying on over 800 routes and 325 destinations worldwide. As of the end of October 2022, around 30 customers have ordered 780+ A220 aircraft - confirming its breakthrough on the small single-aisle market.

# New Record from Sabiha Gökçen Airport in the Number of International Arrivals

According to the data of the General Directorate of State Airports Authority of the Ministry of Transport and Infrastructure (DHMI), the number of arriving passengers on domestic flights was 20 thousand 671 and the number of departing passengers was 21 thousand 295 at Sabiha Gökçen Airport, which experienced air traffic density on December 24, 2022. On the international lines, despite the record-breaking number of incoming passengers with 29,162, the number of outgoing passengers was 26,582. Thus, on December 24, international passenger traffic reached 55,744 in total, and a total of 97,710 passengers were served.

Berk Albayrak, CEO of Istanbul Sabiha Gökçen Airport, stated that they are motivated by the new records they have set in



international passenger and flight numbers and said:

"As the city's leading airport, our international passenger rates have started to exceed the levels where we achieved historical peaks in our performance. On Saturday, 24 December, when the winter season and the

intensity of the beginning of the year combined, we had our busiest day with 29 thousand 162 passengers. Our passenger rates exceeded 6 percent in 2019, when we achieved a historic peak in our performance. We work day and night to provide our guests with an excellent airport experience."

OHS, the world's busiest airport with a single runway and single terminal with a passenger capacity of 41 million, closed 11 months with 28.1 million passengers as of the end of November for 2022, and was chosen as the second fastest recovery airport in Europe in terms of its rapid recovery performance during the epidemic.



# ATU Opened Its Renewed Store at Skopje Airport

TAV Airports and Unifree Duty Free/Gebr. ATU Duty Free, a subsidiary of Heinemann, opened its main duty free store, which it restructured by expanding it to 326 square meters at Macedonia's Skopje Airport, with the participation of Macedonian Transport and Communications Minister Blagoj Bochvarski. ATU CEO Ersan Arcan, TAV Macedonia General Manager Metin Batak and ATU North Macedonia Operations Manager Murat Demirağ also attended the opening ceremony.

Macedonian Transport and Communications Minister Blagoj Bochvarski said Skopje International Airport is the first point of contact for passengers visiting our country. For this reason, he stated that they welcome the presence of ATU Duty Free at Skopje International Airport and the raising the bar for the services offered to passengers with this new investment.

ATU CEO Ersan Arcan said, "We are happy to contribute to the development of North Macedonia's civil aviation and tourism with our store investments and expanded operation in Skopje and Ohrid International Airports. Turkey and North Macedonia share deep-rooted historical, economic and cultural ties and we



are happy to build a bridge between the two countries in the field of aviation. We have invested a total of 1 million Euros in North Macedonia so far. Since the start of our operations at Skopje and Ohrid Airports in 2010, we have achieved significant growth in duty-free merchandising. In line with our expanding operation, our contribution to employment also increased in parallel. In line

with our future projection for North Macedonia, we are pleased to announce the opening of our main duty free store, whose expansion project has been completed with an investment of approximately half a million Euros for the increasing number of passengers, the demand in duty-free retailing, and our expanding operation. Our new main duty-free store at Skopje International

Airport will continue to offer passengers a unique shopping experience with a wide range of products, including world-famous elite brands and local products, in an area of 326 square meters."

TAV Macedonia General Manager Metin Batak stated that they believe ATU's new duty-free shop will add value to the experience of passengers traveling from Skopje International Airport and thanked everyone who contributed.

In the store, where distinguished brands and local products in different categories from cosmetics to souvenirs are also available; There are also new brands added to ATU's portfolio at Skopje Airport.





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