

AVIATION TURKEY

**IATA EXECUTIVES
GATHERED WITH
GLOBAL AVIATION MEDIA
IN GENEVA**

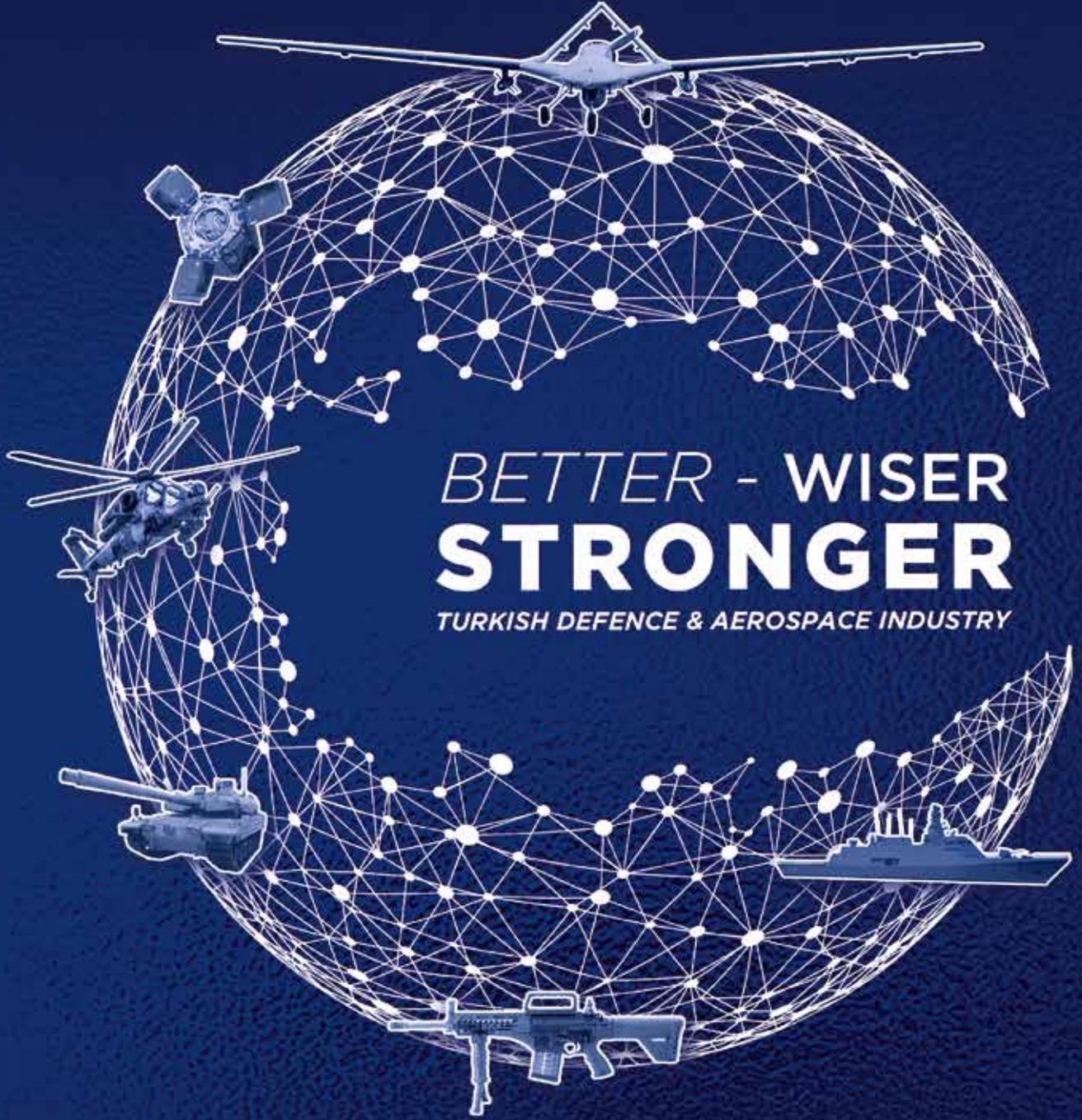
**TECHNOLOGY
HIGH-TECH MATERIAL
UTILIZATION TREND IN
THE AVIATION INDUSTRY**

**REPORT
TURKISH AIRPORTS
UPWARD PERFORMANCE
IN 2019**

AVIATION HISTORY
**ELLY BEINHORN'S
RECORD BREAKING
FLIGHT FROM GERMANY
TO TURKEY**

**WOMEN OF
AVIATION
WORLDWIDE
WEEK**

**CABIN INTERIOR
AIRCRAFT SEATING MARKET
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Basım Tarihi

Şubat - 2020

Yayın Türü

Süreli



IATA
Executives
Gathered
with Global
Aviation
Media in
Geneva

Jetex –
Ready to
Take Private
Aviation in
Turkey to
New Heights



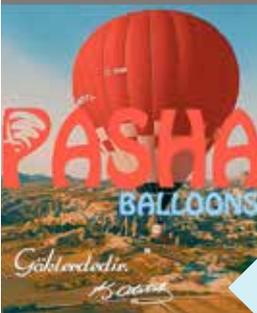
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Year for
Air Freight
Demand
Since 2009



nts



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25by2025 - IATA's Gender Balance Campaign Gains Momentum

The 25by2025 campaign carried out by the IATA, is a global initiative to change the gender balance within the aviation industry as an initial step towards achieving increased gender balance in the aviation industry. 25by2025 is a voluntary campaign for IATA member airlines to improve female representation in the industry by 25%, or up to a minimum of 25% by 2025.

As of December 2019, 59 airlines including Turkish Airlines and Pegasus Airlines have joined the campaign which seeks to address gender balance in civil aviation worldwide. These 59 airlines that have currently committed to 25by2025 represent 30.24% of passenger traffic, covering both traditional and low-cost airlines. The initiative has resonated around the globe, with signatories coming from all continents; Europe (36),

followed by Asia-Pacific (10), the Americas (7) and Africa & Middle East (6).

In Turkey, the activities related to Gender Balance in Aviation initiated by Mr. Can Erel are carried out by the DGCA (Turkey's Directorate General of Civil Aviation Authority) the "Gender Balance Fostering Commission (GBFC)" and the "Gender Balance Fostering Commission Advisory Board (GBFCAB)" are conducting activities along with members from the authority and selected companies, schools and NGOs in the aviation sector. The DGCA sets up and enforces rules in Turkey to increase sector-based capacity, productivity, and aviation activities and checks the implementation of the regulations set by the International Civil Aviation Organization (ICAO) to ensure that the aviation activities are carried out safely and securely.

As a member of Turkey's GBFCAB, Pegasus Airlines continues to support awareness-raising programs for women regarding job opportunities in aviation, and to improve the quality and quantity of roles available to women in the sector. In line with Pegasus Airlines' ongoing efforts to promote gender equality in business and the aviation sector, Pegasus has signed IATA's "25by2025" initiative. In 2016, Pegasus Airlines became the first airline in the world to endorse the United Nations Women's Empowerment Principles (WEPs), illustrating the significance that the airline places on gender equality and the role of women in business and the workplace.

"The 10th Women of Aviation Worldwide (WOAW) will be celebrated during the entire week, from March 2nd through March 8th 2020 on global scale. To that end, we had prepared



a comprehensive article in this issue. to honor female aviators.

I would like to give special thanks to Mr. Adel Mardini, Jetex President & CEO; Mr. Mohamed Al Mohannadi, Gulf Helicopters CEO; Ms. İrem Hiçyorulmaz, General Manager of Fly Service for their



valuable contributions. Additionally, many thanks to our authors; Ms. Lale Selamođlu Kaplan, Dr. Emir Öngüner, Tamer Saraçyakupođlu, Gökhan Demirdöken and Sıtkı Atasoy as well as our editorial team; Cem Akalın, İbrahim Sünnetçi, Muhammed Yılmaz, Şebnem Akalın, Saffet Uyanık, and Mr. Can

Erel for their interesting and informative articles about the aviation world.

In this issue, our dedicated team has prepared great articles and reportage on topics such as Drone Technologies, Turkish Airport Performance in 2019, Cabin Interior-Aircraft Seating Market, Air Cargo, New

Technology & Material Trends in the Aviation Industry, Aviation Law, Aviation History, Aviation English, Aviation Photography, Women in Aviation, Hot Air Balloons, Travel Experiences and Global & Local News. In short, we constantly concentrate on embracing all aspects of aviation to keep you

informed. We like it. I hope you will like it as well...

Have a Safe Flight...

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by Ayşe Akalin



IATA Executives Gathered with Global Aviation Media in Geneva

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IATA's Annual Global Media Days event took place at IATA's executive offices in Geneva on 11-12 December, 2019 where Aviation Turkey magazine's Editor in Chief, Ayşe Akalin was also in participation.

In addition to the opportunity to hear from Alexandre de Juniac, IATA's Director General and CEO, this year's event featured an extended format that includes a special focus on Environment—one of the top issues facing the industry. The agenda also included briefings on 2020's economic and traffic outlook, aviation safety and security trends, disabled passengers, infrastructure and airline industry retailing, among other subjects. In addition, there was a deep dive into air cargo, which has a unique set of challenges in the face of trade tensions and tariff wars.

Alexandre de Juniac, Director General and CEO of IATA delivered an opening speech saying, "This year, over four-and-a-half billion passengers and 61 million tons of freight will travel across a network of more than 22,000 unique city pairs connected by air". He also stated that as the

world focuses on cutting carbon to avoid a climate calamity, they committed to improve fuel efficiency by an average of 1.5% annually between 2009 and 2020 and they are achieving a 2.3% reduction as of 2019. He underlined that IATA supports \$2.7 trillion in economic activity, equivalent to 3.6 of global GDP.

Brian Pearce, Chief Economist of IATA delivered a speech and mentioned that the strongest growth has been in the domestic Chinese market with a 8.5% growth and other emerging markets such as Eastern Europe and within Asia have grown 7-8% so far as of 2019. He also stated that the surge in aircraft deliveries will challenge capacity and even if demand growth

picks up in 2020, there is a threat that supply could rise even faster, given the 2,100+ aircraft that are scheduled to be delivered once, the B737 Max returns to service.

Gilberto Lopez Meyer, Senior Vice President, Safety & Flight Operations, IATA mentioned from January to June 15, there were a total of 20 accidents worldwide, of which 3 resulted in jet hull losses and 1 turboprop hull loss. There was a total of 3 fatal accidents which accounted for 201 fatalities. The first half of 2019 has seen the overall accident rate decrease over 2018. Most regions experienced a decline while both Sub-Saharan Africa and North America saw increases.

He also stated that IATA held two 737 MAX summits

to facilitate discussions regarding returning to service and related issues. The key takeaways from the summits were "public and employee confidence in the B737 MAX is critical" and "mutual recognition of the aircraft is critical not only for 737 MAX but for all future aircraft."

Industry steps up efforts against rogue lithium battery shipments

Nick Careen, Senior Vice President, Airport, Passenger, Cargo and Security took the floor and mentioned the biggest security threat is Lithium Batteries. He mentioned that the IATA focused on that area via 3 initiatives; a new incident reporting system, an industry awareness campaign on the dangers of shipping undeclared and misdeclared lithium batteries and the facilitation of a joined-up industry approach. It is stated that much of the focus of the campaign is on the air cargo sector as lithium ion batteries cannot be carried as cargo on passenger flights and it is better to pack lithium powered



Brian Pearce - Chief Economist of IATA Bu fo

devices and accessories into passenger carry-on bags. He stated that cybersecurity is top of mind in aviation and Airlines and governments need to continue work together to understand threats and vulnerabilities. The IATA aims at building capacity, improving efficiency and driving optimization in security systems.

“Dangerous goods, including lithium batteries, are safe to transport if managed according to international regulations and standards. But we are seeing an increase in the number of incidents in which rogue shippers are not complying. The industry is uniting to raise awareness of the need to comply. This includes the launching of an incident reporting tool so that information on rogue shippers is shared. And we are asking governments to get much tougher with fines and penalties,” said Nick Careen, IATA’s Senior Vice President, Airport, Passenger, Cargo and Security.

It is stated that governments must also play their role with much stricter enforcement of international regulations to ensure the safe transport of these vital shipments. The four trade associations urge regulators to follow through with significant penalties for those who circumvent regulations for the transport of lithium batteries.



Nick Careen - IATA's Senior Vice President

After a Challenging year, improvement is expected in aviation for 2020

IATA forecasts that the global airline industry will produce a net profit of \$29.3 billion in 2020, improved over a net profit of \$25.9 billion expected in 2019. Overall industry revenues are forecasted to reach \$87.2 billion and passenger numbers are expected to reach 4.72 billion with an average net profit \$6.20 per departing passenger. Freight tons carried are expected to recover to 62.4 million, a 2.0% increase over 61.2 million tons carried in 2019 which was the lowest figure in three years.

Performance drivers for 2020

Economic Growth: GDP is forecasted to expand by 2.7% in 2020 (marginally above the 2.5% growth in

2019). World trade growth is expected to rebound to 3.3% from 0.9% in 2019, as election year pressures in the United States contribute to reduced trade tensions. Growth is supported by actions from central banks as well as easing fiscal policy.

Fuel Costs: Slower-than-expected global economic growth in 2019 contributed to lower energy demand, with crude oil prices averaging around \$65 per barrel (Brent), compared to \$71.60 in 2018. Oil supply is also plentiful, boosting inventories. As a result, oil prices are expected to dip further in 2020 to \$63 (Brent). Jet kerosene prices are also expected to dip, averaging \$75.60 per barrel versus \$77 per barrel in 2019. The expected industry fuel bill of \$182 billion will represent 22.1% of expenses, down from \$188 billion or 23.7% of expenses in 2019.

Labor: Total employment by airlines is expected to reach 2.95 million in 2020, up 1.6% on 2019.

Productivity (ATKs/employee) is expected to rise 2.9% over 2019 as capacity growth picks up. Unit labor cost (\$/ATK) is expected to be virtually flat at \$0.12, as better productivity offsets increasing wages.

Passenger: Passenger demand (RPKs) is expected to grow 4.1% in 2020, in line with 4.2% growth in 2019. In fact, this masks a GDP-growth-driven pick-up since the underlying growth rate fell to less than 4.0% in 2019. However, whereas passenger capacity (ASKs) rose 3.5% in 2019, it is forecast to grow 4.7% in 2020 – as aircraft deliveries rise significantly, causing load factors to slide to 82% from 82.4% in 2019. This will maintain pressure on yields, which are expected to slide 1.5% after falling 3.0% in 2019. Passenger revenues, excluding ancillaries, are expected to reach \$581 billion (up 2.5% from \$567 billion in 2019).

Cargo: Cargo traffic turned negative last year for the first time since 2012. The 3.3% annual decline in demand was the steepest drop since 2009 during the Global Financial Crisis. Freight carriage, meanwhile, slipped to 61.2 million tons from 63.3 million tons in 2018. Cargo traffic is expected to rebound moderately with 2.0% growth in 2020, with tons forecast to reach 62.4 million, which is still below

the 2018 result. Yields will continue to slide with a 3.0% decline forecast for 2020, an improvement from a 5.0% decline in 2019. Cargo revenues will slip for a third year in 2020 with revenues expected to total \$101.2 billion, down 1.1% from 2019.

The 2020 average return airfare is expected to be \$293 where air freight rates are expected to be 1,66/kg. The number of unique city pairs served by airlines is forecast to grow to 23,162 in 2020. The value of trade carried will reach \$7.1 trillion dollars, up 5.1% over 2019. Airlines are expected to contribute \$136 billion to government coffers in tax revenues.

European carriers are forecast to report a \$7.9 billion net profit in 2020 as airlines in the region benefit from the opposite pattern of the developments expected in North America. Economic growth is forecast to pick up and, as a result of substantial cuts in expansion plans, capacity growth is expected to be moderate, helping to improve the supply-demand balance. The net profit per passenger is expected to \$6.40. This relatively good aggregate performance for the region hides a long list of airlines just breaking even or making losses, which is why there were a series of European airline failures in 2019.

One ID- “Seamless” journey

Nick Careen, Senior Vice President, Airport, Passenger, Cargo and Security gave a comprehensive information of IATA One ID concept. One ID introduces an opportunity for the passenger to further streamline their journey with a document-free process based on identity management and biometric recognition. Passengers will be able to identify themselves at each airport touchpoint through a simple biometric recognition. The objective is to achieve a truly interoperable system coordination between airports, airlines and governments.

In order to reduce repetitive identity checks and create a seamless flow, One ID seeks to introduce a robust, integrated identity management across the end-to-end passenger process that allows an individual to assert their identity online or in person.

Passengers: seamless experience with one single identification: One ID will provide a “seamless” journey and improve the overall passenger experience. Passengers will no longer need to juggle between different documents. With a single identification, they will be easily recognized by all service providers. This will eliminate repetitive processes, resulting in less queuing. Ultimately, it will



Alexandre de Juniac - Director General and CEO of IATA

enable passengers to arrive at the airport ready to fly in nearly every travel scenario.

Airlines/Airports: cost-effectiveness & efficiency: One ID will improve staff productivity by reducing time spent on manual ID checks. It will also provide real-time visibility of where passengers are in the airport process, possibly allowing smart queuing. This all will help optimize airport space efficiency. Ultimately airlines will benefit from all the passenger process improvements with happy customers, which is likely to translate into commercial opportunities.

Governments: enhanced security: One ID will enable improvements in border, aviation and airport infrastructure security. It will help combat human trafficking and other cross-border criminal activities by reducing the possibility for individuals to cross borders under a false identity.

NEXTT- New Experience Travel Technologies

Alexandre de Juniac, Director General and CEO of IATA underlined their approach

on this program and he said “While One ID presents a huge opportunity to smooth out the passenger journey, more needs to be done to accommodate expected growth and evolving customer expectations. To address the challenges of future airports, we have partnered with Airports Council International (ACI) to create the NEXTT or New Experience Travel Technologies initiative. Together we are exploring important changes in technology and processes to improve the efficiency of what our customers experience when traveling. This includes examining options for increased off-site processing, which could reduce or even eliminate queues. We are also looking at employing artificial intelligence and robotics to more efficiently use space and resources. A further crucial element is improving data sharing among stakeholders”.

After his brief information at the opening speech, Anne Carnall, Program Manager, Future Airports talked about the program.

NEXTT (New Experience Travel Technologies), is

a joint initiative by IATA and Airports Council International that creates a common vision for the future of air transport. The vision of NEXTT is to improve and streamline travel journey elements at the airport and beyond by means of coordinating the adoption of new and emerging technologies. This shared vision examines the elements that will likely transform the complete end-to-end journey over the next 20 years. Global passenger and cargo volumes are both expected to double in the next 20 years. If the industry approach remains fundamentally the same as today, capacity will not match the predicted pace of growth, highlighting the need for a unified approach to airport infrastructure and operational efficiency improvements. Ensuring that all who need and wish to travel can do so, and that goods are delivered faster and with greater predictability, requires industry transformation which makes best use of new technologies.

Objectives are to create industry level consensus of the concepts for future airports, to determine R&D, standardization or regulatory developments needs and to roll-out work streams to facilitate making the concepts a reality. NEXTT provides a vision rather than a project and will not create a single product to be deployed at airports.

Turkish Airlines and Pegasus Airlines joined 25by2025, IATA's Gender Balance Campaign

At the afternoon session of IATA Global media days event, Jane Hoskisson Director, Learning & Development made a speech on about the 25 by 2025 program.

25by2025 is a global initiative to change gender balance within the aviation industry as an initial step to making the aviation industry more gender balanced. 25by2025 is a voluntary campaign for IATA member airlines to improve female representation in the industry by 25%, or up to a minimum of 25% by 2025.

Within the campaign, the airlines will report annually on key diversity metrics, increase the number of women in senior positions and under-represented areas and female nominations from their airlines for IATA governance roles to a minimum of 25% and work with IATA to increase the number of women appointed to IATA governance roles to a minimum of 25%.

IATA commits to create a forum for sharing best practices and collate industry metrics in an



Jane Hoskisson - Director, Learning & Development

annual update, will increase the number of women in top senior positions, participating at events, panels and conferences to and appointed to IATA governance roles to a minimum of 25%.

Initially 3 airlines; Qatar Airways, Lufthansa and China Eastern joined to the program in September 2019. As of December 2019, 59 airlines covering Turkish Airlines and Pegasus Airlines have joined the campaign which seeks to address gender balance in civil aviation. These 59 airlines that have currently committed to 25by2025 represent 30.24% of passenger traffic, covering both traditional and low-cost airlines. The initiative has resonated around the globe, with signatories coming from all continents; Europe (36),

followed by Asia-Pacific (10), the Americas (7) and Africa & Middle East (6).

The next phase of the campaign will focus on collecting data on the key areas signatories have committed to: the number of women in senior positions (as defined by the airline), the number of women in underrepresented areas within the airline (e.g., Pilots, Maintenance & Engineering), and the number of nominations and appointments to IATA governance groups. IATA is also measuring and reporting on the number of women in senior positions, and the number of women represented in industry meetings. The findings will be shared during IATA's Annual General Meeting and Air Transport Summit in Amsterdam in June 2020.



Carbon emissions per passenger have decreased more than 50% since 1990

Much of the improvement has occurred because the industry has achieved an annual fuel efficiency improvement of 2.3% over the period since 2009, some 0.8 percentage points ahead of target.

This progress is a combination of investments in more efficient aircraft and operational efficiencies.

“Cutting per passenger emissions in half is an amazing achievement of the technical expertise and innovation in the aviation industry. But we have even bigger ambitions. From 2020 we will cap net emissions. And by 2050 we will cut emissions to half 2005 levels. Accomplishing these targets means continued investment in new technology, sustainable fuels, and operational improvements,” said Alexandre de Juniac, IATA’s Director General and CEO.

Airlines have invested some \$1 trillion in new aircraft since 2009, and in addition have signed forward purchase agreements for sustainable aviation fuel (SAF) amounting to approximately \$6 billion. In addition, the introduction of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) will ensure carbon-neutral growth on international flights from 2020 and raise around \$40 billion in climate finance.

Alternative measures are inefficient and fail to cut carbon

Analysis from IATA shows that efforts to deliberately suppress air travel through punitive passenger taxes are inefficient and largely ineffective at reducing carbon.

The CORSIA scheme’s effectiveness lies in its global scope. It is estimated it will reduce emissions by around 2.5 billion tons over

the lifetime of the scheme. But global goodwill towards implementing CORSIA is being compromised by governments introducing a patchwork of carbon taxes. A series of decisions or proposals have been made in recent months to levy air passenger taxes, including in France, Germany, the Netherlands and Switzerland.

“Taxation aimed at stopping people from exercising their freedom to fly will make travel more expensive but do very little to reduce emissions. It is a politician’s feel-good solution, without taking responsibility for the negative impact it has on the economy or the mobility restrictions it imposes on people with lower incomes,” said de Juniac.

Long-term, aviation is aiming to reduce emissions with cleaner technology. This will require a financially sound airline sector capable of funding the significant investments that will be needed to make flying sustainable.

“Governments must focus their efforts correctly. Flying drives prosperity. It is not the enemy. Cutting carbon must at the forefront. And government leadership is needed to incentivize the commercialization of sustainable aviation fuels, drive efficiencies in air traffic management and support research into next generation low-carbon energy sources,” said de Juniac



Alexandre de Juniac met with Ayşe Akalin at IATA's Annual Global Media Day



These awards aren't actually for us,
it was given to millions of passengers who preferred us.

thank you!

CITY AIRPORT
SABİHA GÖKÇEN





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2019 Worst Year for Air Freight Demand Since 2009

The International Air Transport Association (IATA) released full-year 2019 data for global air freight markets showing that demand, measured in freight ton kilometers (FTKs), fell by 3.3% compared to 2018 while capacity (AFTK) rose by 2.1%. This was the first year of declining freight volumes since 2012, and the weakest performance since the global financial crisis in 2009 (when air freight markets contracted by 9.7%).

In the month of December, cargo volumes contracted 2.7% year-on-year while capacity rose 2.8%.

Air cargo's performance in 2019 was dampened by weak growth in global trade of just 0.9%. The sector's

underperformance was also due in particular to slowing GDP growth in manufacturing-intensive economies. Softer business and consumer confidence, along with falling export orders, also contributed to air freight struggles.

There are signs that confidence and orders could pick up in 2020. It

is too early to say what long-term effects will be seen from the impact of restrictions associated with combatting the coronavirus outbreak.

"Trade tensions are at the root of the worst year for air cargo since the end of the Global Financial Crisis in 2009. While these are easing, there is little relief in that good news as we

are in unknown territory with respect to the eventual impact of the coronavirus on the global economy. With all the restrictions being put in place, it will certainly be a drag on economic growth. And, for sure, 2020 will be another challenging year for the air cargo business," said Alexandre de Juniac, IATA's Director General and CEO.

December 2019 (% year-on-year)	World share ¹	FTK	AFTK	FLF (%-pt) ²	FLF (level) ³
Total Market	100.0%	-2.7%	2.8%	-2.7%	46.7%
Africa	1.8%	10.3%	10.0%	0.1%	36.8%
Asia Pacific	34.6%	-3.5%	2.8%	-3.4%	51.9%
Europe	23.7%	-1.1%	4.9%	-3.2%	53.0%
Latin America	2.8%	-5.3%	-3.1%	-0.7%	30.0%
Middle East	13.0%	-3.4%	1.9%	-2.6%	47.0%
North America	24.2%	-3.4%	2.1%	-2.2%	39.5%

¹ % of industry FTKs in 2019 ² Year-on-year change in load factor ³ Load factor level

Regional performance

All markets except Africa suffered volume declines in 2019. Asia-Pacific retained the largest share of FTKs, at 34.6%. The share of freight traffic increased modestly for both North America and Europe, to 24.2% and 23.7%, respectively. Middle East carriers' traffic share held steady at 13%. Africa and Latin America saw their shares lift marginally, to 1.8% and 2.8%.

Asia-Pacific carriers in December posted a decrease in demand of 3.5% compared to the same period a year earlier. Capacity increased by 2.8%. The full-year 2019 saw volumes decline 5.7%, the largest decrease of any region, while capacity increased by 1.1%. As the world's main manufacturing region, international trade tensions and the global growth slowdown weighed heavily on regional air freight volumes in 2019. Within-Asia FTKs were particularly affected (down 8% compared to a year ago).

North American airlines saw volumes fall by 34% in December, while capacity grew by 2.1%. For 2019 in total, the region's cargo volumes declined by 15%, compared to a capacity increase of 1.6%. Trade tensions and cooling US economic activity in the



latter part of the year have been factors in the decline. The 5.6% fall in international year-on-year volumes in December was the weakest monthly growth outcome for the region since early 2016.

European airlines experienced a 1.1% year-on-year decrease in freight demand in December, with a capacity rise of 4.9%. The fall in December was typical of the performance for 2019 as a whole, where volumes fell 1.8%, but capacity increased by 34%. Softer activity, including in the manufacturing-intensive German economy, combined with ongoing Brexit uncertainty, contributed to the 2019 result, which in international freight volume terms was the weakest since 2012.

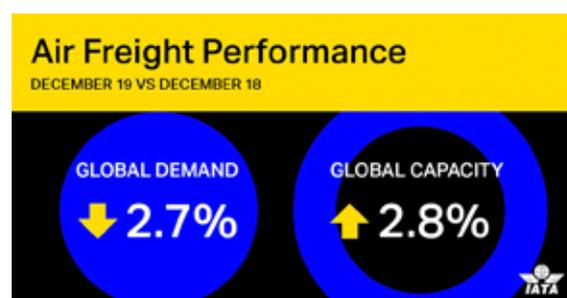
Middle Eastern carriers' freight volumes decreased 3.4% year-on-year in December and capacity increased by just 1.9%, the lowest of any region.

This contributed to an annual result of a decline in demand of 4.8% in 2019 – the second greatest decline in growth rate of all the regions. Annual capacity increased just 0.7%. Disruption to global supply chains and weak global trade, together with airline restructuring in the region, were the chief drivers of the weaker freight outcome.

Latin American airlines suffered the sharpest fall in demand of any region in December, of 5.3%. The region was also the only one to see a reduction in capacity (-3.1%). Although the region was the second strongest performer across 2019 as a whole, limiting its decline in volumes to just

0.4%, social unrest and economic difficulties in several key countries led to the weakest international FTK outcome since 2015. Annual capacity increased 4.7%.

African carriers' saw freight demand increase by 10.3% in December 2019, compared to the same month in 2018. This was reflected in the strong 2019 full-year performance, which saw Africa freight volumes expand 74%. Capacity in December grew by 10% and for 2019 in total, increased by 13.3%. Over the year, air cargo volumes have been supported by strong capacity growth and investment linkages with Asia.



Istanbul Airport – Cargo City

Melih Mengü - Advisor to CEO, IGA

Istanbul, with its strategic location in the crossroads of east and west, is able to further contribute to Turkey's economy in terms of aviation operations. Based on this idea, the construction activities of Istanbul Airport were initiated in order to benefit from the geographical location of Istanbul more effectively and to meet the needs of our rapidly growing flagship THY. The need for a new airport emerged based on the fact that the existing capacity of Ataturk Airport had become insufficient to keep pace with the growth of Turkey's aviation activity.

The tender for Istanbul Airport was realized in 2013 and the site delivery to IGA, the successful bidder, was made in May 2015. Istanbul Airport, which is Turkey's largest infrastructure construction project, was completed in a record period of 42 months, and was opened by President Recep Tayyip Erdogan with a grand ceremony on October 29, 2018.

So far, Istanbul Airport has been on the agenda with its passenger-based features such as the number of passengers, bridges, passport counters, check-in counters, but on the other hand it has considerable potential with its autonomous, smart

business management that regulates cargo transportation, services and infrastructure. With the completion of the facilities of Turkish Cargo and the closure of Atatürk Airport to cargo airline flights, Istanbul Airport will come to the forefront more within the country and abroad with its superior cargo services.

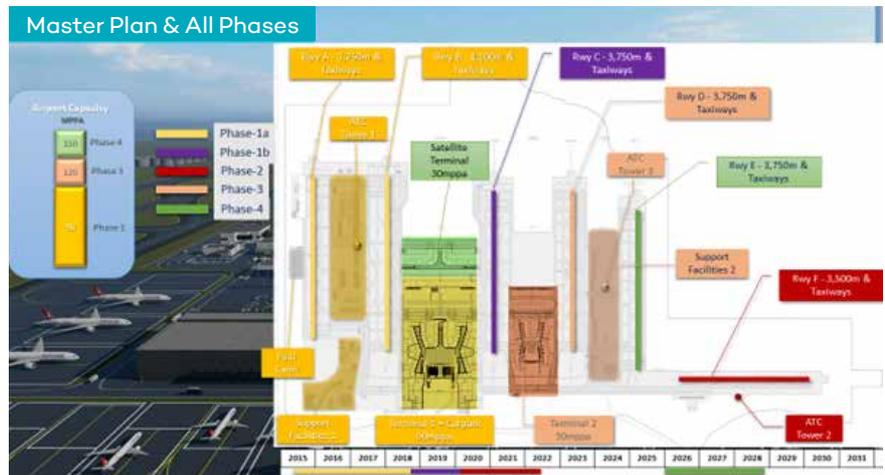
Turkey's unique geographical location within a distance of just a 5-hour flight from Europe, Middle East, Asia, Northern Eastern Europe and its characteristic as a natural hub between the continents of Asia, Africa, Europe and the Americas has been increasing the strategic importance of cargo and logistics operations. As of today, Istanbul Airport provides transportation activities to 300 destinations, 52 of



which are domestic and 250 of which are international, (133 of which are 3-hour destinations) in a total of 120 countries (60 of which are capitals). The addition of long-haul flights with wide-bodied aircraft and flights to over 200 destinations with narrow-bodied aircraft will contribute greatly to Turkey's passenger and cargo potential. With the inclusion of transit passenger and cargo activities in all these operations, Istanbul Airport will start to become a very efficient connection point for Turkish Airlines, as well

as cargo airlines and airport stakeholders.

Having hosted many civilizations for centuries, Istanbul, one of the world's leading trade centers due to its unique location, has become one of the most important metropolises in the world today thanks to its ever-growing economy and expanding flight network. Istanbul Airport - Cargo City, with its geographical location and high standards of security and efficiency services, is expected to be an important part of the economic growth of



Istanbul and at the same time to become one of the most important air cargo and logistics centers for Eastern Europe, Middle East and Central Asia.

In particular, it is important to mention that the provision of fast, uninterrupted, safe and comfortable transportation and connections to and from the airport is necessary in order for the Istanbul Airport to become a reputable hub and to ensure the sustainability of the economic growth. In this context, in addition to the multi-transport infrastructure as well as airway and highway connections to Istanbul Airport, plans have been made to connect the railways within the next five years. When all the phases of this investment are completed, Istanbul Airport - Cargo City will be amongst the top five airports in the world with its qualified management capability and operational structure.

The planning of Istanbul Airport – Cargo City was made considering the needs of the air cargo industry and the examples of the cargo cities in the world, and within the framework of the master plan, the operations of Air Cargo Carriers, Bonded and Duty-Free Warehouses, Ground Handling Companies, Cargo Agencies, Cargo Shipping Companies, Courier Companies and



Public Institutions have been gathered in the same location. Most importantly, cargo activities have also been initiated with this business model. The first phase of Istanbul Airport - Cargo City was established on 14 million m2, and as of its official launch date, the cargo handling capacity was 1.5 million tons and the target in 2021 was determined as 5.5 million tons, and all plans were designed in this direction.

Many activities have been launched by local and foreign companies at Istanbul Airport - Cargo City, such as agency

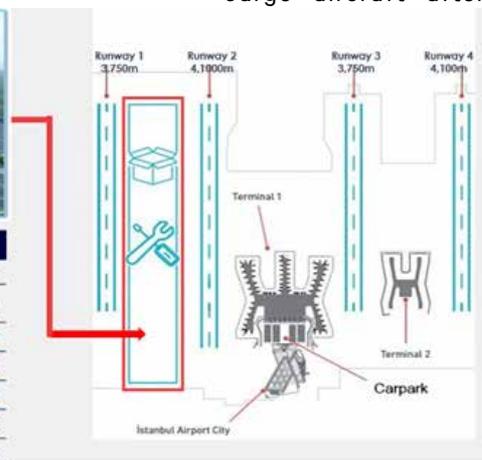
offices and customs officers providing cargo, fast courier-mail, logistics, and temporary storage services. Specifically, there are cold chain warehouses on 9,000 m2, valuable and fragile goods warehouses, and live animal storage areas on 5,000 m2. The business model of the airport operator IGA has planned for the allocation of space for all public buildings, especially the Customs building, the agency building free warehouses apart from the all buildings and to support the stakeholders in carrying out their own operations.

Exceptional infrastructure and operational efficiency

Cargo City is located between the 1st and 2nd runways, at the west of the terminal building. The Aircraft Maintenance Hangars and the Air Traffic Control Tower are located in the north of this area, and all the structures were established towards the south. The main purpose in this planning was to be able to bring cargo aircraft to the parking position within a short time and to immediately departed cargo aircraft after



Cargo City	Area
Annual Cargo Capacity	5.5 mil. tons
Total Cargo Space	1.4 mil. Sqm
Expansion Area	60K sqm
Total Leasable Area	435K sqm
Temporary Storage Area	195K sqm
Carpark capacity	6.000 cars
Aircraft Parking	29 aircrafts



AIR CARGO

completing cargo handling operations. In this context, Cargo City is located in the north-south direction, and the warehouses and other buildings are located next to the runways in the east and west from the area where the city was first entered. In the area in front of the warehouses, trucks are able to park on loading-unloading ramps established in close proximity to the inside of the warehouses with a distance of less than 50 meters from parked cargo aircraft.

Cargo pallets under passenger aircraft that are parked in lots close to the terminal and passenger walkways are transported by ground handling companies to various warehouses at Cargo City via 3 different tunnels on the apron. The cargo handling process has been considerably facilitated by the air cargo carriers' own aircraft parking positions in front of the warehouses. At Cargo City, where more than 29 wide-bodied cargo aircraft can take parking positions simultaneously, parking positions are located right in front of the warehouses. The efficient and effective operational infrastructure also facilitates access to passenger terminals and remote parking lots from these locations. With the completion of the 4th runway, it will be possible to establish a second

Facilities		
Warehouse	Closed Area (sqm)	Volume (K Ton)
Bonded		
1 Turkish Cargo (THY)	210,000	1,200
2 MNG Airlines	12,000	80
3 ÇELEBI (Handling)	17,500	40
4 HAVAŞ (Handling)	11,000	50
5 SİSTEM	15,000	30
6 DHL Express	25,000	15 (mail)
7 UPS Cargo	6,800	13 (mail)
8 PTT Upim	10,000	3 (mail)
9 TNT-Fedex (under project)	13,500	5 (mail)
	320,800	1,400
Unbonded		
Unbonded Warehouse		Closed Area (000 sqm)
10 Barsan Global Lojistik	2,700	
11 DHL Global Forwarding	2,700	
12 Ünsped Uluslararası Lojistik	2,700	
13 Fevzi Gandur Lojistik	2,700	
	10,800	

Specialized cargo facilities

- ✓ Valuable products
- ✓ Live animal
- ✓ Dry/refrigerated food (9,000 sqm)
- ✓ Radioactive material
- ✓ Pharmaceutical product



cargo city between the 3rd and 4th runways, such as between the 1st and 2nd runway.

Istanbul Airport flight operations

The operations of cargo aircraft at Istanbul Airport - Cargo City launched on April 10, 2019, and as of today, 74 airlines carrying cargoes onboard passenger aircraft, as well as 9 cargo airlines including Turkish Cargo, MNG, Lufthansa, Qatar, SilkWay, Egypt Air, Atlas Air, ASL Airlines (FedEx) and Uzbekistan Air have been performing activities, and 4 of which are cargo airline companies that did not fly to Atatürk Airport previously. In addition, 11 passenger airlines have started to fly to Istanbul for the first time with the launch of Istanbul Airport. Monthly cargo flights are realized at an average frequency of 110-120,

while passenger flights are at an average frequency of 1,300 per day. At the end of the 10-month period following the launch, approximately 60% of the total cargo volume of Ataturk Airport and Istanbul Airport had been made through Istanbul Airport.

It is planned that the facilities of DHL Express will become operational by the end of 2020 and the new terminal of Turkish Cargo will be operational by March 2021. DHL, UPS and FedEx plan to conduct their Eurasia operations via Istanbul Airport, which is a natural hub due to its geostrategic location in the middle of Europe, Asia and Africa.

Istanbul Airport Cargo City, with an area of 1.4 million square meters and a cargo handling capacity of 1.5 million tons will provide a significant contribution

to Turkey's economy. Most importantly, Istanbul Airport is a major competitor of Hong-Kong, Memphis, Dubai and Frankfurt airports in terms of volume and operations with its Cargo Airline Parking capacity. With the activation of other phases of Cargo City, the commissioning of new runways and the increase in flight frequencies, Istanbul Airport Cargo City is expected to reach a 5.5-million-ton cargo handling capacity.

With its smart facilities and buildings equipped with cutting-edge technology and due to the autonomous and smart business management model, Istanbul Airport will start to reap the fruits of its investment in the concept of future airports and will rapidly become one of the leading players in the aviation industry

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TURKISH AIRPORTS UPWARD PERFORMANCE IN 2019



by Muhammed Yilmaz

In 2019, globally 1,303 airlines conducted operations with 31,717 aircraft in their fleet between 3,759 airports, and approximately 4.5 billion people traveled by plane. The airports in Turkey hosted 209 million passengers, including transit passengers in 2019.

Increasing fuel prices and the negative effect of instability and the upward trend in exchange rates had a direct impact on domestic flights and the number of passengers. In Turkey, the number of domestic passengers decreased by 11.3% compared to the previous

year and was published as 100.1 million, while the number of international passengers increased by 11.4% and reached 108.7 million. Let's have closer look at the highlights of the 2019 status reports of the airports in our country.

Istanbul Airport opens its doors!

2019 will be remembered as the beginning of a new era in Turkish aviation. Istanbul Airport was tendered as the biggest project in the history of the Republic of Turkey on May 3, 2013, valued at € 22,152 billion. The construction activities were initiated on June 7, 2014 and it was launched with full capacity on April 6, 2019.

On June 21, 2018, President Recep Tayyip Erdoğan made the first flight to the airport, which was built by IGA (Istanbul Grand Airport) which is a consortium of 5 companies. The airport will be operated by this consortium throughout a 25-year period. The first phase of the airport was planned to be inaugurated on October 29, 2018, with two runways and a terminal with a capacity of 90 million passengers per year.

The move to the airport, which was constructed under the shadow of many debates and discussions such as the name of the airport, its location, predominant wind directions in the region, its proximity to Bulgarian airspace, whether it is on the bird migration path, the environmental impact assessment report, the working conditions of

the workers, was first postponed to December 31, 2018 and then it was announced that a gradual transition process would be followed as the flag carrier, Turkish Airlines started conducting several domestic and international flights from Istanbul Airport. Later, the date of the great move was revised to take place on March 3, then it was adjusted to April 6, 2019.

Finally, the great move, which was referred to as "the big bang" and was scheduled to last 45 hours, was successfully completed in a shorter duration than expected (33 hours) and Istanbul Airport officially started its activities with the IST code.

During the great move, where more than 1,800 employees were on task and took charge, nearly 47,300

tons of materials were transported from Atatürk Airport to Istanbul Airport. The trucks carrying these loads covered a total of 400 thousand kilometers during the impressive operation, in other words, the trucks traveled an equivalent of 10 times around the world during the great move.

The last passenger flight from Ataturk Airport was made by Turkish Airlines on April 6 at 02:00 between Istanbul and Singapore and then Atatürk Airport, where the foundations of Turkish aviation were laid, and was closed to commercial passenger flights.

The first flight after moving to Istanbul Airport was made between Istanbul and Ankara; just like it was with Atatürk Airport 86 years ago (it was called Yeşilköy Airport in those days). Onur Air was the first private airline that landed at Istanbul Airport and Oman Air was the first international airline. Etihad Airways' Airbus A330, which made the Abu Dhabi-Düsseldorf flight, became the first aircraft to diverted to Istanbul Airport.

2020 forecast for Istanbul Airport

After the launch at full capacity, Istanbul Airport continued operations under the shadow of various discussions such as long



Istanbul Airport © IGA

taxi times, the length of the walkways inside the terminal and the lack of the rail system from the city center. The airport ended the year 2019 with a total of 52.5 million passengers, 12.7 million of which were domestic passengers and 39.8 million international passengers. 73 airlines conducted flights in Istanbul Airport and the target was set to exceed 80 airlines in 2020.

Kadri Samsunlu who CEO of IGA announced that the 3rd runway will be put into service on June 18, 2020 which will reduce the taxi times that passengers have complained about. In the last quarter of 2020, the Istanbul Airport metro is also planned to be put into service.

Record growth at Sabiha Gökçen Airport and construction of the second runway

Sabiha Gökçen Airport is located on the Anatolian

side of Istanbul and has continued its growth throughout 2019. The foundations of the airport which were laid in 1998 and officially launched in 2001, a record increase in the number of passengers and flight traffic was achieved in 2019 especially thanks to Pegasus Airlines' upward growth trend in the aviation industry, in particular areas such as the steps taken for the development of the Turkish aviation industry, as well as meeting demands

beyond expectations by providing services to regions in its hinterland.

Sabiha Gökçen Airport wrapped up 2019 with a total number of 35.4 million passengers, 21.4 million of which were domestic and 14 million were international. These figures made Sabiha Gökçen Airport number one in Turkey in terms of the number of domestic passengers and number three in terms of the total number of passengers.

Airports	2019 Year Domestic		2019 Year International		2019 Year Total		Growth Rate (%)
	Passenger	Flight	Passenger	Flight	Passenger	Flight	
Atatürk	52,500,000	12,700,000	39,800,000	10,000,000	92,300,000	22,700,000	25%
Sabiha Gökçen	35,400,000	14,000,000	21,400,000	8,000,000	56,800,000	14,000,000	25%
Erzurum	1,200,000	500,000	800,000	300,000	2,000,000	500,000	15%
Van	800,000	300,000	500,000	200,000	1,300,000	300,000	10%
Adana	600,000	250,000	400,000	150,000	1,000,000	250,000	12%
Antalya	500,000	200,000	300,000	120,000	800,000	200,000	18%
Denizli	400,000	150,000	250,000	100,000	650,000	150,000	14%
Erzincan	300,000	120,000	200,000	80,000	500,000	120,000	16%
Elazığ	200,000	80,000	150,000	60,000	350,000	80,000	13%
Malatya	150,000	60,000	100,000	40,000	250,000	60,000	11%
Siirt	100,000	40,000	70,000	30,000	170,000	40,000	9%
Trabzon	80,000	30,000	60,000	25,000	140,000	30,000	8%
Yozgat	70,000	25,000	50,000	20,000	120,000	25,000	7%
Adana	60,000	20,000	40,000	15,000	80,000	20,000	6%
Antalya	50,000	15,000	35,000	12,000	65,000	15,000	5%
Denizli	40,000	12,000	28,000	10,000	58,000	12,000	4%
Erzincan	30,000	9,000	21,000	7,000	42,000	9,000	3%
Elazığ	20,000	6,000	14,000	5,000	29,000	6,000	2%
Malatya	15,000	4,500	10,500	3,500	21,000	4,500	1%
Siirt	10,000	3,000	7,000	2,500	14,500	3,000	0%
Trabzon	8,000	2,500	5,500	1,800	11,300	2,500	-1%
Yozgat	7,000	2,200	4,800	1,500	9,000	2,200	-2%
Adana	6,000	1,800	4,200	1,300	7,500	1,800	-3%
Antalya	5,000	1,500	3,500	1,100	6,600	1,500	-4%
Denizli	4,000	1,200	2,800	900	5,000	1,200	-5%
Erzincan	3,000	900	2,100	650	3,750	900	-6%
Elazığ	2,000	600	1,400	450	2,850	600	-7%
Malatya	1,500	450	1,050	350	2,100	450	-8%
Siirt	1,000	300	700	250	1,450	300	-9%
Trabzon	800	250	550	180	1,030	250	-10%
Yozgat	700	220	480	150	630	220	-11%
Adana	600	180	420	130	550	180	-12%
Antalya	500	150	350	110	460	150	-13%
Denizli	400	120	280	90	370	120	-14%
Erzincan	300	90	210	65	275	90	-15%
Elazığ	200	60	140	45	205	60	-16%
Malatya	150	45	105	35	155	45	-17%
Siirt	100	30	70	25	115	30	-18%
Trabzon	80	25	55	18	83	25	-19%
Yozgat	70	22	48	15	63	22	-20%
Adana	60	18	42	13	55	18	-21%
Antalya	50	15	35	11	46	15	-22%
Denizli	40	12	28	9	37	12	-23%
Erzincan	30	9	21	6	27	9	-24%
Elazığ	20	6	14	4	20	6	-25%
Malatya	15	4	10	3	15	4	-26%
Siirt	10	3	7	2	11	3	-27%
Trabzon	8	2	5	1	8	2	-28%
Yozgat	7	2	4	1	7	2	-29%
Adana	6	1	4	1	6	1	-30%
Antalya	5	1	3	1	5	1	-31%
Denizli	4	1	2	1	4	1	-32%
Erzincan	3	1	2	1	3	1	-33%
Elazığ	2	1	1	1	2	1	-34%
Malatya	1	1	1	1	1	1	-35%
Siirt	1	1	1	1	1	1	-36%
Trabzon	1	1	1	1	1	1	-37%
Yozgat	1	1	1	1	1	1	-38%
Adana	1	1	1	1	1	1	-39%
Antalya	1	1	1	1	1	1	-40%
Denizli	1	1	1	1	1	1	-41%
Erzincan	1	1	1	1	1	1	-42%
Elazığ	1	1	1	1	1	1	-43%
Malatya	1	1	1	1	1	1	-44%
Siirt	1	1	1	1	1	1	-45%
Trabzon	1	1	1	1	1	1	-46%
Yozgat	1	1	1	1	1	1	-47%
Adana	1	1	1	1	1	1	-48%
Antalya	1	1	1	1	1	1	-49%
Denizli	1	1	1	1	1	1	-50%

AIRPORTS



Sabiha Gökçen Airport

However, 2020 did not start well for Sabiha Gökçen Airport. On January 7, the Boeing 737 of Pegasus Airlines flying from Sharjah skid off the runway and the airport was closed to all flights for about 24 hours. This was followed by an accident of the Boeing 737 belonging to Pegasus Airlines flying from Izmir on February 5 due to a runway excursion. Even though these two incidents bring up many discussions about the airport, the most prominent detail is that the second runway at the airport has not been completed yet.

The sole runway, which was referred to as 'fatigued' by the Minister of Transport Cahit Turan following the accident which resulted in the interruption of all flights for hours, the non-stop daily flight operations continued due to devoted overhaul staff operations within limited time at night.

The non-completion of the 2nd runway, which was tendered back in 2014 and was planned to be constructed in 2015, is a matter of debate. Moreover, the fact that Istanbul

Airport was built from scratch during this period further increases question marks.

The announcement made by the Directorate General of Civil Aviation, "Due to the ongoing maintenance activities and traffic intensity, additional frequency/new flight permit applications other than domestic/international, scheduled/non-scheduled, periodic/individual flight permits to Istanbul Sabiha Gökçen Airport will not be evaluated by our Directorate General at this stage.", this statement seems to

indicate that the 2020 performance of the airport is likely to fall slightly. On the other hand, we need to note that the Defense Industry Presidency shared a comment with the public at the 2019 press conference stating that the construction of the Sabiha Gökçen Airport's 2nd Runway is expected to be completed and the construction of the new terminal building will be initiated in 2020.

Another surprise decision for Sabiha Gökçen Airport in 2020 was from Turkish Airlines. The airline made the decision to transfer all domestic and international

flights from/to Sabiha Gökçen Airport to Anadolu Jet which trade mark of Turkish Airlines.

The most punctual airport with only one runway!

Reaching 35 million passengers annually with a single runway, Sabiha Gökçen Airport also achieved a surprising achievement. In the Airport Punctuality Report issued by the UK based research company OAG, which tracks timely departure performance of operations at airports, Istanbul Sabiha Gökçen Airport managed to reach the top of the list with its 83.42% on-time take-off performance rate in the airport category with an annual passenger number between 20 and 30 million. Minneapolis and Detroit airports from the U.S. followed Sabiha Gökçen Airport. Miami, Doha, Houston, Las Vegas, Tokyo Narita, Rome, Vienna, Boston, Sydney and Zurich airports took part in the top 20 list as well. It was considered to be a big

Rank	Coverage	Airport name	Code	OTP 2019
1	94.2%	Istanbul Sabiha Gokcen	SAW	83.42%
2	98.3%	Minneapolis/St Paul	MSP	83.27%
3	99.6%	Detroit	DTW	83.08%
4	91.5%	Sao Paulo Guarulhos	GRU	81.39%
5	99.7%	Charlotte	CLT	80.70%
6	96.3%	Phoenix	PHX	80.28%
7	96.7%	Miami	MIA	80.22%
8	98.6%	Doha	DOH	80.21%
9	99.2%	Houston	IAH	79.25%
10	95.9%	Las Vegas	LAS	79.12%
11	92.7%	Tokyo Narita	NRT	78.61%
12	88.9%	Bangkok Don Mueang	DMK	78.31%
13	96.6%	Rome Fiumicino	FCO	77.00%
14	98.7%	Orlando	MCO	76.83%
15	82.3%	Vienna	VIE	76.00%
16=	87.7%	Boston	BOS	75.11%
16=	97.9%	Fort Lauderdale	FLL	75.11%
18	96.2%	Sydney	SYD	74.05%
19	90.6%	Melbourne	MEL	73.75%
20	97.7%	Zurich	ZRH	71.87%

surprise that the airport, which is the constantly criticized by passengers for flight delays was chosen as the “most punctual airport”. This is a noted success well because the airport manages flight traffic extraordinarily with a single runway.

Antalya Airport continues growth

Antalya Airport is one of the most-visited touristic cities in the world and has been increasing its number of passengers each year. The airport concluded 2019 with 7 million domestic and 28.6 million international passengers. With these figures, it reached the achievement of becoming Turkey's 2nd largest airport in terms of both international flights and the total number of passengers.

In parallel with the increase in the number of tourists visiting the city, the tender process for the expansion of the terminal and new additional investments related to increasing the airport's capacity are going on. As a consequence of these positive advancements, the number of passengers at

Antalya Airport is expected to increase in the upcoming period.

Ankara Esenboğa Airport, which ranked 5th after Istanbul Airport, Sabiha Gökçen, Antalya and Atatürk Airports with 13.6 million passengers in terms of total number of passengers, suffered from a serious loss of 21% in domestic flights in 2019 and hosted only 11.4 million passengers. Even if it increased its international passengers by 1% to 2.3 million, it could not manage to avoid an 18% decrease in the total number of passengers compared to the previous year.

Izmir Adnan Menderes Airport ranked just after Ankara Esenboğa Airport and hosted 12.4 million passengers in 2019. This airport also went through a considerable decline in the number of domestic passengers compared to 2018. Although the airport hosted only 9 million domestic passengers in 2019 with a 15% loss, it saw an increase in the number of international passengers by 22% reaching 3.3 million passengers.

Dalaman and Milas Bodrum Airports were amongst the few airports that achieved an increase in the total number of passengers compared to the previous year. The airports, which suffered greatly from shrinkage in the domestic flight market in Turkish aviation, managed to balance this loss with an increase in the number of international passengers. While Dalaman Airport closed in 2019 with a total of 4.9 million passengers, 3.3 million of which were international flights, Milas Bodrum Airport achieved a yearend total number of 4.3 million passengers, 1.9 million of which were international passengers.

How did our airports begin 2020?

According to the aircraft, passenger and load statistics of the General Directorate of State Airports Authority for January 2020, domestic passenger traffic at airports with service across Turkey was recorded as 7,799,042, and international passenger traffic was 6,131,774. Thus,

total passenger traffic including direct transit passengers in January was recorded as 13,952,310.

Considering that the number of domestic passengers was 8,579,242 and international passengers was 5,469,813 during the same period of 2019, it is possible to forecast that the downward trend in the number of domestic passengers and the rise in international passengers will continue in 2020.

It is also possible to make the same analysis regarding the number of passengers at Istanbul Airport. In January 2020, Istanbul Airport, which is our country's most important gateway abroad, served a total of 5,276,260 passengers, 1,263,808 of which were domestic passengers and 4,012,452 were international passengers. When the number of passengers of Atatürk Airport and Istanbul Airport were considered together in the same period of 2019, the number of domestic passengers was recorded as 1.46 million and the number of international passengers was 3.75 million 📍



Ankara Esenboğa Airport

INTERVIEW



JETEX

FLIGHT SUPPORT

Jetex – Ready to Take Private Aviation in Turkey to New Heights

In this issue, we are proud to share an interview by Ayşe Akalın, Editor in Chief of Aviation Turkey Magazine, with Adel Mardini, Jetex President & CEO about his career and his company, Jetex Flight Support.

INTERVIEW

One of the global leaders in executive aviation, Jetex is recognized for delivering flexible, best-in-class flight support solutions to customers worldwide. Jetex provides exceptional FBOs, aircraft fueling, ground handling and global trip planning. The company caters to an elite clientele including owners and operators of business jets for corporate, commercial and personal air travel.

 **Ayşe Akalın:** Mr. Mardini, can you briefly share a bit about who you are, your background and what sparked your interest in aviation?

Adel Mardini: I'am a Damascus-born Turkish-national businessman, the descendant of a Turkish father and a Syrian mother.

In my early days, I worked at Damascus International Airport where I was transporting passengers and crew between the



airport terminal and aircraft. I enjoyed the job and that's how my interest in aviation started.

 **Ayşe Akalın:** What was the catalyst for the formation of Jetex, can you tell us about how the company was formed?

Adel Mardini: I often heard passengers and crew complain about the lack of adequate service especially when flying on private jets, so I quickly realized there was a gap in the service chain and saw an opportunity to fill that gap. That's where the

idea of Jetex came from.

In 2005 I launched my company Jetex in Dubai and made the official announcement at the European Business Aviation Convention and Exhibition (EBACE) in May of that year.

 **Ayşe Akalın:** What can you say about Jetex's current aviation capabilities and the latest developments so far?

Adel Mardini: Jetex initially started as a trip support company and after 4 years of strategic planning, research and networking, we launched our first FBO at the Paris' Le Bourget Airport.

We then added other FBOs in Dubai, Muscat, Rome, Abidjan, and Marrakech to name a few and we continue to expand our network by constantly adding new locations and entering new territories.

In 2019, in recognition of Jetex's achievements, World Travel Awards honored the company

with 3 prestigious awards.

And earlier in 2019, Jetex was granted five-star ratings by the Global Star Rating System for Services for the company's FBOs in Paris and in Dubai. This recognition makes Jetex the first FBO brand to receive a 5-star rating.

Jetex is also certified by both Safety 1st and the International Standard for Business Aircraft Handling (IS-BAH) in both France and the Middle East proving that service quality and safety are of paramount importance for us.

With Jetex I have sought to create a new concept of customer experience in business aviation. Traditionally, FBOs were regarded as no more than a gas station for aircraft and a booth to clear customs & immigration. Much to Jetex's credit, the new FBO concept includes full amenities for relaxation and comfort, an entertainment lounge, and exercise equipment.



Adel Mardini and Ayşe Akalın

INTERVIEW

chance of winning the first FBO license in Turkey.

Ayşe Akalın: Do you have any plans for a business visit to Turkey in 2020?

Adel Mardini: We plan on participating in the Istanbul Air Show in 2020 and bring a HondaJet for a static display. We've also participated in the 2018 edition of the Istanbul Air Show and had a reserved chalet and a HondaJet at the static display.

The Turkish market has great potential for growth and naturally we wish for Jetex to be a part of that growth.

Ayşe Akalın: Is there anything you would like to add?

Adel Mardini: We hope 2020 will be a good and prosperous year for business aviation in Turkey and around the world.

Ayşe Akalın: Thank you for sharing your time with us, Aviation Turkey. We hope to visit and see more Jetex facilities around the world, soon 🌍



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Ayşe Akalın: What would you like to share about Jetex's Dubai Airshow performance?

Adel Mardini: For the third consecutive time, Jetex was the appointed as the official FBO handler for the 2019 Dubai Air Show.

We handled more than 125 aircraft and were happy to contribute to the success of the show.

We are grateful to the show organizers and the airport authority for giving us this trust.

Having been appointed as the official handler in 2015, 2017 and 2019, it echos the satisfaction of the exhibitor operators and the show organizers and their trust in Jetex's capabilities.

Ayşe Akalın: What do you envision as far as projections regarding Jetex's future activities with Turkey?

Adel Mardini: Turkey is one of the prominent markets in the region. There are more than 110 registered aircraft in the country and Istanbul's strategic location boasts 3 airports.

Ayşe Akalın: How did Jetex become interested in Turkish aviation?

Adel Mardini: Jetex is currently the official dealer of the HondaJet aircraft in the Middle East, Turkey and Pakistan.

Ayşe Akalın: What are your expectations from

Turkey and Turkish aviators regarding meeting your plans and expectations in the future?

Adel Mardini: The only hindrance for our expansion into Turkey is the restriction on FBO concessions.

We hope that Atatürk Airport can be dedicated to serving general aviation and that the Turkish government would pass regulations for the activities of FBO providers and to run an official tender for FBO concessions where FBO-specialized companies from around the world can compete to win an FBO license. If that were to happen, we believe Jetex has a very strong



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Aircraft Seating Market Heating Up!

by Muhammed Yilmaz

According to the International Air Transport Association (IATA), the number of passengers traveling by air will reach 7.2 billion by 2035. This means that the number of passengers today will increase by nearly 60% in the next 15 years. The increase in demand is expected largely from the Asia-Pacific region, especially India and China. According to Boeing's future projections, over 39,000 new aircraft will be demanded over the next 20 years, and about 15,000 of this demand will be from the Asia-Pacific region. Therefore, as the number of passengers and aircraft increases, airlines will try to make travel as comfortable as possible, especially for those traveling in economy class.

In light of these two key estimates regarding the market, analysts expect that the commercial

passenger aircraft seating market will see an average annual growth rate of 9% during 2020–2024. This means the market will grow approximately by US\$ 4.7 billion dollars within the specified period. Based upon these forecasts' experts anticipate that market volume will reach an exceptional level of nearly US\$ 13.5 billion dollars in 2026.

The global upward trend in air travel is a key factor that also triggers the growth of the seating market. This increase in demand for air travel is attributed to the rapid growth of the urban middle class of the worldwide. According to the Brookings Institute, the number of people in the urban middle class globally will reach 5.4 billion by 2030.

Zodiac Aerospace-Safran (France), B/E Aerospace-Rockwell Collins, Inc. (USA), Geven S.p.A. (Italy), RECARO Aircraft Seating

(Germany), HAECO Americas (USA), Lufthansa Technik (Germany) and Stelia Aerospace (France) stand out as the major actors in the commercial passenger aircraft seating market.

These manufacturers have gained considerable power in the market due to their varied product range from economy class to first class. These companies also have well-equipped production facilities and very effective distribution networks in

North America, Europe and Asia Pacific regions. These features are strong enough to make them the most demanded companies in the overall market.

Why is the aircraft seating market growing?

There are several main reasons for the growth in the seating market. While the increase in demand for comfort and luxury in air travel stands out as the most important reason, the



© RECARO Aircraft

RECARO Business Class Seat

increase in the rate of use of new generation innovative materials is another important factor. Materials such as composites in the design and manufacturing processes of aircraft seats also are another important detail in the growth of the global commercial aircraft seating market.

It is possible to define economy class in an aircraft as an area of opportunity where airline companies often strive to place more seats in the cabin in order to increase profits, but in doing so some comfort standards are inevitably reduced such as seat pitch and legroom. The in-flight entertainment system is not available in the overall aircraft for most passengers traveling in this class. Therefore, many airlines today aim to increase the comfort level in economy class by offering wider knee space and legroom as well as better entertainment system options.

Qantas, for example, recently replaced seats with a reclining mechanism for more comfortable sleep in the economy class of its A380 fleet. You can considerably increase the comfort of your travel when you move the bottom of the seat forward and tilt the back (to the extent possible). Similarly, Virgin Atlantic renewed the seats of the Boeing 747 aircraft flying from Glasgow, Manchester and London in the Premium economy cabin. The airline



Stelia Aerospace - OPAL Business Class Seat

placed 21-inch wide seats in their Premium economy cabins and increased passenger comfort. According to analysts, these developments lead to new business opportunities that could bring serious profits.

Factors affecting the development of the seating market

Areas such as the global increase in the number of passengers and flight traffic, the increase in aircraft deliveries to airlines, the increase in focus on the sensitivity of cabin improvements in existing aircraft, cabin modifications, seat changes, maintenance of aircraft seats, and the

developments in after-sales services stand out as the main factors impacting the growth of the market.

On the other hand, there are various factors that negatively impact potential growth in the seating market.

These include; the limitations caused by regulations in developing economies, bureaucratic procedures created by certification processes, and the decrease in airline companies' profit margins for many reasons. Additionally, there is an expectation by airlines to limit the market growth of in-flight entertainment systems and mobile connections.



Virgin Atlantic B747 Premium Class Seat

Which region will dominate the seating market?

In the commercial aircraft seating market, North America generated revenue worth US\$ 2.7 billion in 2017 and has been dominating the market for a long time. As for many components of the aviation industry, the Asia Pacific region stands out as the region that will make the greatest leap in the seating market in the next 20 years. Market growth in this region will be largely due to the increase in passenger traffic in countries such as India, China, Japan and Indonesia. Airlines in this region have been witnessing significant growth in the domestic travel market, particularly in the last decade. Emerging markets need new aircraft to meet rapidly growing air traffic demand. Therefore, while new airlines start their operations in developing economies such as India and China, where passenger traffic has increased above the average growth rate, considerable seat demand has also emerged for these airlines in their aircraft.

On the other hand, the figures show that travelling in the business class cabin has increased in recent years and this increase will continue in the upcoming period. A

CABIN INTERIOR

serious demand increase to the North American region is expected in the next 10 years, which is the locomotive of the sector also for the business class seating market.

In Asia-Pacific, it is likely that aircraft OEMs such as Mitsubishi will increase their business volumes and gain a higher market share.

Global airlines are increasingly demanding high technology products for the seats they place in aircraft cabins. This, as a result, gradually increases competition among the key players in the market and gives rise to increased comfort for passengers, and an expanded option and reduced costs for airlines. In May 2019, for example, Etihad Airways selected Acro Aircraft Seating to procure innovative Series 6 economy-class seats with an excellent seatback curve, providing passengers immense legroom and knee comfort. Some airlines offer innovative ideas to their passengers. Lufthansa, for example,

introduced thinner seats in the cabin, made from mesh fiber for extra legroom for passengers.

The highest demand will be for Premium economy seats!

For the next 10 years, the biggest breakthrough in the commercial aircraft seating market will emerge in the area of Premium economy cabin seats. This will occur in direct proportion to the demand boom in this segment, as passengers pay less than first and business class seats and have the chance to travel more comfortably than in economy class. Many global airlines are exerting efforts to integrate the Premium economy segment into their cabins. Emirates, for example, is preparing to introduce this innovation in its cabins in 2020. At the Dubai Airshow held in November 2019, it was announced that Premium economy class will be introduced in Airbus A350 and Boeing 787 Dreamliner

aircraft. Singapore Airlines has started work in order to reduce the number of first-class seats in A380s and increase the number of Premium economy seats. Lufthansa also plans to completely eliminate the first class segment on Boeing 777-9 aircraft, which will join the fleet. Thus, the highest class on the aircraft will be business class. All these changes present concrete examples of a new trend in all airline companies, where the first-class cabins are replaced with Premium economy and will become more common in the upcoming period.

Seats for narrow-body aircraft will be more in demand!

In the next 10 years, a substantial increase demand for seats produced for the narrow-body aircraft market is expected. The increasing demand for narrow-body aircraft from low-cost carriers operating especially in developing

countries can be shown as the reason for this growth. Low-cost airlines tend to procure narrow-body aircraft due to short-haul flights and lower maintenance costs and this creates a boom in the number of orders that single-aisle aircraft manufacturers receive especially in the recent period. Additionally, the challenges encountered by Boeing with its newest 737 MAX aircraft for the narrow body aircraft market, and its grounding across the world for nearly 1 year has increased the demand for Airbus A320 aircraft extraordinarily, and it has completely upset the market balance.

The effect of seat change is unarguable!

Leading airlines have critical process management know-how in the periodic replacement of seats. Seats that have been used for a long time are being updated with new generation seats. In other words, the renewal



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TSI - Boeing787 Dreamliner Economy Seat

of seats certainly is an important area of focus. Replacing seats in an existing aircraft with the latest technology seats available which are made of smart, advanced and lightweight materials provides substantial dynamism to the market. Furthermore, many airlines make moves to personalize the seats and seat manufacturers carry out activities considering such demands. Modern aircraft seat components such as IFE systems, actuators and seat structures are able to reduce the total weight of the aircraft considerably, as they are made of lighter materials. Therefore, renewals in the cabin with seat changes can significantly contribute toward reducing the airline's operating costs. Considering that more than 30% of operating costs are fuel expenses, the fact that airlines

fulfill such improvement projects in order to reduce costs and maintain competitive power creates a positive atmosphere with a domino effect throughout the sector.

A Unique seat for Turkish Airlines' Dreamliner!

Economy class seats of Boeing B787-9 Dreamliner aircraft, which Turkish Airlines added to its fleet last year, were produced by the Turkish aircraft seat manufacturer TSI (Turkish Seat Industry).

Economy class seats will be Epianka model seats produced by TSI in all of the 30 Dreamliner aircraft that are scheduled to join the airline's fleet.

Epianka model economy class seats with 11.6-inch screens are produced by TSI which is a joint venture of Turkish Airlines, Turkish

Technic and Assan Hanil established in 2011 to design, manufacture, replace and commercialize aircraft seats and spare parts. TSI obtained the approval of Boeing after passing challenging tests and were handed over to be placed in the aircraft. The new seats will transform the cabin and create a new perspective for economy-class seats with new features focusing on comfort and practicality. The 11.6-inch modern screens for in-flight entertainment system will be replaced with 13.3-inch screens as from 2020 Q1. This will make the Epianka a global leader in providing a seat model that has the widest screen used in the economy class in the entire world.

TSI, aiming to reduce foreign dependency with the support it provides to domestic suppliers,

continues its design, engineering, production and R&D activities at Istanbul Sabiha Gökçen International Airport and its facilities in Utah, USA, with a team of 140 people. Delivering seats to Boeing 8 months earlier than the industry average, TSI achieved another success in this respect. The company's objective, with an annual revenue that is expected to reach US\$ 50 million in 2020, is set to double this annual revenue figure by 2023.

Having received an order for about 400 aircraft from Turkish Airlines, the company also has agreements with Freebird Airlines, Azerbaijan Airlines, Nordavia Airlines and Nordwind Airlines. Aiming to be amongst the top five aircraft seat manufacturers in the world by 2023, the company also has a target to increase its annual production capacity to 100,000 seats within the next few years.





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What kind of seats is TSI producing?

TSI has the capability to produce different products both for economy and business classes. In economy class, 3 different models, Elesa, Elesa S and Miligram are produced only for narrow-body aircraft. Epianka for economy class is produced both for narrow and wide body aircraft, while Skysofa is produced only for the economy class of wide-body aircraft.

For business class seats, only the model Royalux is produced for narrow body aircraft. With its features such as electrically controlled recline capability and leg rest extension, a mechanically operated 4-way head rest, an electrically controlled lumbar support and massage function, a bi-fold in-

arm table with sliding and swivel mechanisms, a recess for a beverage glass, a back mounted monitor (15.5") with tilt mechanism, an 11.6" in-arm monitor (optional), a personal wireless charging module on side pockets, a rotatable privacy divider, a stalk switch reading light on privacy divider, a cocktail table, full provisions for handset, USB, RJU, a seat power unit kill switch, a power supply system, IFE system requirements, and a literature pocket for each passenger, overall it has the same features as its competitors in this field.

Epianka started to be used in 2018 by obtaining the necessary certificates for Airbus A321neo and Boeing 737 MAX type narrow-body aircraft. Thanks to the agreement signed with Airbus in November 2019, TSI was entitled to take its place

in Airbus' BFE (Buyer Furnished Equipment) catalog.

With the Approved Seat Supplier Agreement, Skysofa and Epianka model economy class seats of TSI are also now entitled to be included in the catalog as of 2020 Q1 for Airbus A350 XWB,

A330 and A320 aircraft. The Elesa S model will also be included in the future products section of the catalog. Royalux, TSI's first Business Class product will take its place in the catalog after the completion of the certification phase 🔄



TSI Royalux Business Class Seat

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“BFE Catalogue”

Contract

20 November 2019



by İbrahim Sünnetçi

TSI Seats Becomes an Airbus Approved Seat Supplier!

The “Approved Seat Supplier” agreement was signed between Airbus and TSI Seats at a ceremony held on November 20, 2019 at the Four Seasons Hotel, Istanbul with the participation of senior executives from Turkish Airlines (THY), Turkish Technic, Kibar Holding and an Airbus delegation. French Consulate officials of Istanbul were also present at the ceremony where a supplier agreement was signed with Airbus on program and seat basis.

TSI Seats, a joint venture of Kibar Holding, Turkish Airlines and Turkish Technic, successfully completed 7

challenging inspections and evaluations in April 2019 by Airbus in order to become a “Buyer Furnished Equipment (BFE)” Supplier of Airbus’ A320, A330 and A350 XWB Programs and to be featured in the Airbus BFE Catalog.

In the BFE type of purchase method, the airline company that orders new aircraft purchases from the aircraft seat supplier. In such purchases, aircraft manufacturers send a catalog of approved seat suppliers to airline companies. In this way, the airline companies that order new aircraft have the opportunity to select the

seat supplier as well as the model of the seat from these catalogs.

BFE Catalog is the name of the catalog of Airbus by which Airbus approves and starts to use specific companies as its suppliers after various inspections and evaluations. Of course, becoming featured in the catalog is the first step; in order to remain in this catalog, the approved suppliers must perform to the satisfaction of Airbus. TSI Seats is the first company that achieved inclusion in the BFE Catalog on its own scale. In January 2020, the new Airbus BFE Catalog will include TSI

Seats’ Skysofa and Epianka Economy Class seats for Airbus A350 XWB, A330 and A320 series aircraft. The Elesa S will also be featured in the future products section of the catalog. TSI Seats’ first Business Class product, the Royalux model seat, will be featured in the catalog after the completion of its certification process.

In 2019 Air Bus allocated a substantial budget in their projects for TSI Seats. Thanks to the BFE Catalog, it is expected that TSI Seats will increase their recognition and accessibility in the industry. TSI Seats, Turkey’s first

and only aircraft seat manufacturer, aims to take place amongst the top 5 companies in the global market by 2023. Considering the volume from the Airbus BFE Catalog Project in total aircraft orders, the expected increase in retrofit projects and other projects of the company, TSI Seats expects to achieve an export volume exceeding US\$ 100 million in 2023.

In fact, the successful collaboration between Airbus and TSI Seats dates back to September 2015. During this period, TSI Seats first delivered its Skysofa Economy Class seats to Airbus for the Airbus A330, followed by Epianka seats for the first Airbus A321neo ACF (Airbus Cabin Flex configuration) in 2018. Currently, TSI Seats aims to complete the delivery of Economy Class seats for Airbus A350 XWB aircraft before the end of 2019. Such seats will feature 13.5-inch wide screens as part of the cabin entertainment system. With the Approved Seat Supplier Agreement signed, TSI Seats is now eligible to take part in the Airbus BFE Catalog as an approved supplier of Economy Class seats for the A350 XWB, A330 and A320 aircraft family.

During the signing ceremony speeches were delivered by TSI Seats General Manager Suat Sağıroğlu, Kibar Holding CEO and TSI Seats Vice President of the Executive

Board Haluk Kayabaşı and Airbus Vice President Tim Sommer.

Speaking at the ceremony TSI Seats General Manager Suat Sağıroğlu underlined that TSI and Airbus, “an international pioneer in the aerospace industry” has had a successful cooperation since 2015. He went on saying that TSI had delivered its first line fit project to the A330 and later on in 2018 the first A321neo ACF was equipped with TSI Seats Economy Class aircraft seats. “We will deliver Economy Class seats for the A350 before year end” Sağıroğlu added. In his address, Sağıroğlu noted that TSI places great importance on R&D studies that focus on the development of high value-added products and technologies and said, “TSI also increases the quality and reliability by using digital technology at every stage. Safety, quality and sustainability are of great importance to TSI Seats.” Sağıroğlu also stressed that with their new Business Class seats, that are in progress, they aim to make a big change in the market. “We closely follow the trends in the market and do our best to develop seats which meet customer demands and preferences...” Regarding their success in being able to be featured in the Airbus BFE Catalogue following the completion of Airbus’ 7 different and important



Tim Sommer - Airbus Vice President and Haluk Kayabaşı - Kibar Holding CEO and TSI Seats Vice President of the Executive Board

assessments in less than 8 months, Sağıroğlu said, “We have taken great steps in such a short time and achieved a turning point... We are very pleased to have been placed in the Airbus BFE Catalogue. This latest accomplishment shows how hard we have worked to grow TSI Seats by investing in our employees, and by supporting infrastructure and innovation. Being featured in the Airbus catalog will expand our reach and accessibility to the world’s leading airlines and ensures our growth in the market.”

Haluk Kayabaşı, CEO of Kibar Holding also made a speech at the signing ceremony and said, “Today, an ‘Approved Seat Supplier Agreement’ is being signed between Airbus, one of the important international references of the aviation industry and TSI Seats, a joint venture of Kibar Holding, Turkish Airlines

(THY) and Turkish Technic. With this agreement, TSI Seats will be the first company to be featured in the catalog of approved suppliers. Thanks to the catalog, TSI is expected to increase its recognition and accessibility in the sector. This catalog not only provides visibility to suppliers but also gives the prestige of being approved by Airbus. Taking into consideration the share of the Airbus Catalog project in total aircraft orders, the expected increase in retrofit projects and other projects of TSI Seats, we aim to reach an export figure over US\$ 100 million in 2023.”

In his address, Airbus Vice President, Procurement (responsible for the procurement of seats and cabin electronics) Tim Sommer noted that in 2019 Airbus is celebrating its 50th anniversary as a company and added, “When we started, we were nobody,

CABIN INTERIOR

but we were nobody with a big dream. Today we are one of the world's leading aircraft manufacturers. We have a backlog of 7,500 aircraft, and again this year, we're going to deliver a record number of aircraft to the market. But this success is not an exclusive success. About 80% of the aircraft come from our external partners and our suppliers on site. So, all that we did is a joint success!" Sommer underlined that if they want to continue in the business, they need strong partners to grow together with them.

"So, what do we really look for? We try to see who we can work in the business. The first point that I would like to stress is trust and reliability. The second point is about innovation. We would not be where we are today if we had not continuously innovated and improved our aircraft in the last 50 years. In the last years, the cabin has become more and more strategic, and there is more focus place on innovating the cabin. There's a lot of interesting stuff happening in the cabin, but essentially we focus on our own efficiency, so we look for how can we make more efficient use of space, how can we improve on weight, how can we improve cruise efficiency for living and operating in the aircraft. We look, of course, always on how we can improve passenger comfort, how



can we develop new services, which benefit customers and passengers. In the last years, we have looked into how we can provide more and more connected integrated cabin experiences in our airlines for passengers. With all these challenges ahead, I'm not necessarily always looking at the big players in the industry. We have some big players, and they have their merits, but I believe most of the innovation and the breakthroughs in the coming years will not come from the big groups. I see a lot of young hungry players in the market who have real potential to disrupt the industry. So, it's about reliability, trust, innovation and then from our perspective it's about going global, being global," Sommer said.

Sommer pointed out that when they (Airbus) started, they were essentially a European company focusing on a few core countries. But today, they are no longer just a European company, they are a global company serving a global customer

base and rely on a global network of suppliers, and added: "If we want to continue delivering and building the best aircraft in the world, we will only succeed by uniting the best capabilities of external partners of suppliers around the world."

Regarding TSI Seats' accomplishment in becoming featured in the Airbus BFE Catalogue, Sommer said, "I must say you are pretty well-positioned in that. First, you are based in the country in a region, which has great potential for others. You have demonstrated clear potential and ambition to grow in the last years, and you have a great foundation in the team which you have and the facility you have, which I had the pleasure to visit this morning. But I must say that the DNA, the processes, the industrial set, etc. are still quite small, but it is very much state of the art. So, today I think you have a good basis on which you can scale and which you can grow your business."

Underlining the fact that Airbus' relationship with TSI Seat is not a new one and it dates back to 2015 with the A330, moving into A320neo in 2018 and in a few weeks TSI will also be part of the A350 program SOMMER said, "So essentially, you are already in all our key programs. So, what is important now is that we take our relationship to the next level. And the teams are working very hard on that. So, Airbus' requirements are very stringent, very complex, and especially for a smart small company, very hard to fulfill. So, I think it deserves a small round of applause for the team who was working on this in the last months and years and have allowed us to come to the point where we are today. From January 2020, you will be visible and offerable to customers all over the world."

Following the speeches, the Approved Seat Supplier Agreement was signed by Airbus Vice President SOMMER and TSI Seats Vice President KAYABAŞI. The ceremony ended with a photo session 📷

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An Unrivaled Dining Experience is Anticipated Onboard Turkish Airlines with Collins Aerospace's New Essence Galley Inserts

The agreement is for 50 widebody aircraft with options for more essence inserts collection which features a broad product portfolio, including espresso machines



On 18 November, Dubai, Turkish Airlines' new Airbus A350 and Boeing 787 Dreamliner fleets will feature industry-leading Essence Galley Inserts from Collins Aerospace Systems, a unit of United Technologies Corp. The signing Ceremony was held on the second day of the Dubai Air show with the participation of Mr. Brian Schmalz, Vice President of Sales & Marketing at Collins Aerospace and Executives from Turkish Airlines.

Collins Aerospace will provide galley inserts on 25 new A350s and 25 B787 Dreamliners with

options for more. Aircraft deliveries are underway and will continue into 2024. The Collins Aerospace's Essence Galley Inserts includes ovens, beverage making equipment – including espresso machines, and refrigeration products. Essence is a revolutionary line of premium galley inserts, engineered with the latest innovation in technology and designed to deliver an unrivaled inflight food and beverage experience for passengers.

"After providing Turkish Airlines with galley inserts for both narrow body and widebody platforms for

many years, we're really pleased to introduce our customer to the new Essence suite," said Brian Schmalz, Vice President of Sales & Marketing, Galley Inserts, with Collins Aerospace. "Our Essence products are not only intuitive and easy to operate, they are also engineered to produce the absolute highest-quality inflight food and beverages, consistent with Turkish Airlines' world-class service standards. The new galley inserts will help us provide our passengers with expanded offerings, such as espresso and cappuccino

beverages, while enhancing our award-winning dishes from our chefs," said (name), (title), with Turkish Airlines. "Collins Aerospace has been outfitting our galleys for many years, and we look forward to working with them to bring this industry-leading product collection onboard our new aircraft."

In pursuit of the signing ceremony, we took a brief interview opportunity with Mr. Colin Mahoney, VP of Business Development for Interior at Collins Aerospace.

Enjoy ...



Aviation Turkey: Thank you for the interview, Mr. Mahoney. Today you made an agreement with Turkish Airlines for the new Galley Inserts designs. Could you tell us more about these products and technologies of these Galleys, because Turkish Airlines selected your company once again?

Colin Mahoney: Once again, indeed, it was a big milestone for our relationship with Turkish Airlines. As you may have seen in the press, they selected our full range of Essence; this is the brand name for our galley inserts. So, when we say galley inserts, we mean ovens, beverage makers, and refrigeration. What Turkish Airlines going to be able to do with that product line is to continue their journey of being best-in-class for catering. So, for example, they will have an espresso machine, a cappuccino machine on an airplane, which is pretty unusual. So, the Essence product line is our latest in our galley inserts, and we've been supplying inserts to Turkish Airlines for many years. So, this was a very wonderful milestone for the continuity of our relationship with Turkish Airlines.

Aviation Turkey: On what types of aircraft will your products be used?

Colin Mahoney: They are going on the wide-body fleet, both the 787 and A350, so around 50 aircraft.

Aviation Turkey: When will the first deliveries begin? Can you inform us about the delivery schedule?

Colin Mahoney: I am not quite sure when the first deliveries will begin, but I think it won't take long. Turkish Airlines have options according to the schedule as well, so we will deliver the products through 2023, I believe. We'll deliver so many up through 2023.

Aviation Turkey: What technologies do you offer? Why did Turkish Airlines select your company again?

Colin Mahoney: You may think they are just ovens, but they are actually the human-machine interface, so the flight crews have to interface with this equipment. Thus, our products reduce crew workload. They have some automation in them, so a flight attendant doesn't have to stand and monitor things thanks to the technology in the beverage makers. Safety and reliability are the kinds of things you expect from Collins Aerospace. But it is more about how we design our products to make them easy to use because that is one of the critical things that we must do on an airplane.

Aviation Turkey: I know Collins Aerospace profoundly cares about the advancement of its products. Could you inform



us more about your cabin interior technologies?

Colin Mahoney: So, we bring a broad product set to the interior of an airplane. We're talking about Galley Inserts here; we also do Galleys in planes, we do oxygen systems, we do lighting, and we do, obviously the most famous for, the seating. We do all classes of seating from first class to business class, premium economy, and economy

seating. The technologies inside all those products are growing increasingly, so as we become part of the Collins Aerospace. They are not just straightforward seats; they have advanced electronics in them, and if you sit in a business class seat, there are lots of ways to interface with it. So, a lot of advanced electronics that we benefit from being part of the old Rockwell Collins.



Colin Mahoney with Şebnem Akalın at Dubai Air Show '19



by Cem Akalin

The hot air ballooning activities in Turkey have greatly accelerated within the last 11 years thanks to the strategies and visions adopted by the Directorate General of Civil Aviation (DGCA/SHGM). In 2008 there were only 10 Hot Air Balloon operators with a total of 67 hot air balloons in their fleets. It is sufficient to look at 2018 data in order to better understand this acceleration which has increased significantly in

Turkey's First Unique and National Hot Air Balloon Produced by Pasha Balloons Inc.

recent years. According to DGCA data, while there were 239 hot air balloons in the fleets of 30 Hot Air Balloon Companies in 2018, there are now 309 hot air balloons in the fleets of 35 Hot Air Balloon Companies as per DGCA 2019 data. These figures reveal that the industry has grown almost 40% in just one year.

In our interview with the Directorate General of the DGCA Bahri Kesici in June 2019, he stated that hot air ballooning activities are one of the most important

priorities of the DGCA and that they continue to implement practices paving the way for the sector in this regard, and said the following: "We continue to implement practices paving the way for the industry. Ballooning activities have grown exceptionally. Cappadocia has become one of the biggest hot air balloon centers in the world. The number of passengers participating in Hot Air Balloon tours increased to over 500 thousand in 2018, reaching 537 thousand 500. An added

value of over €100 million has been created for Turkey's economy."

Hot Air Balloon flights in Turkey are realized 200 to 260 days per year, depending on weather conditions. At the biggest and most attractive flight point of the world like Cappadocia, almost 90 flights take place daily, while new ones continue to be added to this flight point area.

According to DGCA data, 29,585 balloon flights were realized with 262 Hot Air Balloons of 27

HOT AIR BALLOON



balloon operators in 221 days in the Nevşehir region in 2019, and the number of passengers reached 586,367. In the Pamukkale region, a total of 5,095 balloon flights were realized in 332 days with 47 Hot Air Balloons of 8 balloon operators, and the number of passengers reached 75,415. The total number of flights in the Nevşehir and Pamukkale regions reached 34,680, and the number of passengers reached 661,782 in total. When we look at other balloon flight destinations around the world, Turkey has a significant number of flights and is above average. Depending on the weather and climate conditions, in 2019, 221

days of flight took place in the Nevşehir region and 332 days in the Pamukkale region, this figure was recorded as an average of 60 days in Belgium and 120 days in Spain. Even though the number of flights in the Cappadocia region in 2018 decreased to 221 days in 2019, a substantial increase by 124,282 has been recorded in the number of passengers. This is an indication of the rapid growth of the industry.

Is there any local production of Hot Air Balloon in Turkey? It is one of the world's most attractive destinations in terms of the number of flights, safety and cultural richness. Are the infrastructure facilities, local added value and supplier network sufficient in sustain this growing industry? Let's take a brief look.

On November 12, 2019, Turkey's first unique PH-120 hot air balloon, the design and prototype production of which was realized by Pasha Balloons operating in the Cappadocia region, successfully passed the airworthiness and other tests of the GDCA and was found eligible for a "Type Certificate" and TCDS "Design Organization" and "Production Organization" approvals. While the PH-120 Model Hot Air Balloon Project, which

was carried out under the supervision and control of the GDCA in 2018, was completed in about a year, a demonstration flight was also realized at the ceremony held in Cappadocia on October 10, 2019.

The certification activities of the Hot Air Balloon were executed by GDCA certification experts according to the relevant requirements in the EASA's certification specification (CS31.HB Amend.1). In line with the organization's authorization processes, Pasha Balloons Inc. was found eligible for a Type Certificate, TCDS Design and Production Organization Approvals regarding the PH-120

Model Certification Project on November 12, 2019. At the ceremony held at the GDCA on January 23, 2020, the certificates were delivered to Pasha Balloons executives by the GDCA Directorate General, Bahri Kesici.

With the PH-Series Hot Air Balloon Project, which is the second Type Certificate received in Turkey after the HürKuş advanced primary trainer aircraft, developed and manufactured by Turkish Aerospace, one more important threshold has been achieved for the acquisition of unique and national air vehicles to the aviation sector and for the development of the industry. The type



PH 120 Model demonstration flight was realized in Cappadocia with the participation of DGCA Officials on October 10, 2019

HOT AIR BALLOON



Halis Aydoğan - Chairman of the Pasha Balloon

certificate, certifying that the air vehicle is produced according to the approved design and approving the compliance of the design with the airworthiness requirements offer great opportunities.

What will it bring to Turkey and the balloon industry?

Pasha Balloons Chairman Mehmet Halis Aydoğan stated that with this certificate rendering Turkey a producer country in the hot air ballooning industry, Pasha Balloons' capabilities as a hot air balloon designer and manufacturer were approved and that such capability was certified after being verified by compatibility designations, and he also said that they have taken an important step towards being a global brand.

"The Cappadocia region of our country, where intensive flights are realized, has become an exemplary point for the world ballooning industry

and at the same time it has been the region where the most passenger flights are performed in the world. The arrangement made by the DGCA and the University of Cappadocia with the existing balloon operator for flights in the Cappadocia region is an arrangement that is taken as an example in all over the world in order to be implemented. At this point, it was a duty for us to manufacture with our own design and possibilities

in our country. As Pasha Balloons, we are happy and proud to achieve this."

Pasho Balloon Chairman Halis Aydoğan: "We received an orders from Spain, Portugal and Belgium"

Pasha Balloons Chairman Mehmet Halis Aydoğan stated that they recently have applied to the DGCA for the design

and production of hot air balloons in seven different series, and that they aim to be the world leader in production like they have been in commercial hot air balloon flights. He added that they plan to achieve the same standards with all existing manufacturers with the inclusion of 24 different balloon types in the certificate within 2020.

"Considering the number of balloons which is over 250 in our country, the Cappadocia region ranks first as the region where large-scale balloons, which we call passenger balloons, are used the most. Last year, the balloon operators in our country purchased Hot Air Balloons from manufacturing companies in the UK, Czechia and Spain at an amount of US\$ 4,094,000. Considering these figures, Turkey, as a big market, will be



our first target country. At the same time, our goal is to make Pasha Balloons a world brand by combining our 25-year ballooning experience and knowhow in consumer needs with production, after the failure of existing producers in the European and African markets to meet the demands increases the chance of a new global producer to enter the market. At this point, we have been working on the promotion of our company through participating in balloon festivals and competitions since 2017. As a result, companies from Spain, Portugal and Belgium visited us to see our facilities in January and February 2020 and submitted their order requests for 2020. As a result of our activities in service and maintenance in Africa and the Middle East, our company stands out as a preference. We will be an exclusively active company in the market by adding our 24 types (different dimensions) of balloons and special shaped balloons to our PH-Series Type Certificate by 2020 Q2. I would like to make an addition to special shaped balloons. These balloons, which are not well known in our country but are used for visual and promotional purposes, are very common in Europe and America. We can think of them



© Pasha Balloon

as a flying refrigerator, box and dinosaur. These balloons, which are used especially in balloon festivals, are also used extensively for product promotion activities and we believe this sector will develop in our country in the upcoming period. In addition, we continue our efforts for the development of sportive aviation in our country. In this regard, we organized the first hot air balloon festival in our country in the Cappadocia region with the support and contributions of all stakeholders in 2019. In 2020, we will continue our efforts for the development of ballooning in our country.”

Of course, the sector, growing day by day in terms of number of flights & balloons & passengers, still has some shortages in its production infrastructure. Pasha Balloons Chairman

Mehmet Halis Aydoğan pointed out the difficulties they encountered during the procurement phase as follows:

“Although our country is at a competitive level in terms of textiles, we have difficulties in the procurement stage of the technical fabric, load strips, etc., which are the most important inputs of the hot air balloon production process. In the use of nylon 6.6 yarn in such products, in the processes of weaving and coating within special standards, further progress should be achieved in the final product quality by conducting R&D studies. Similarly, it is very important to carry out R&D studies in accordance with the certification projects of our machining industry in the supply of machined metal parts (seamless steel pipes). At this point, our negotiations with

sector representatives and several universities continue.”

Proceeding with its own resources in the design and production processes, Pasha Balloons continues to work with determination to be a pioneer for the development of the industry, despite the difficulties encountered in the procurement processes. The company's goal, as Turkey's first balloon manufacturer in the international arena, is to be a strong global manufacturer.

The contribution of hot air balloon flights is indisputable in making the country's cultural and historical richness permanent in minds through a journey full of adrenaline. The sector is making a good start in 2020 with new targets with the addition of hidden and unexplored destinations throughout the country ➡



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Gulf Helicopters Company

Thriving in Turkey's mutually beneficial financial environment

In this issue, we are proud to share the interview of Can Erel, Chief Advisor to the Aviation Turkey Editorial Board with Mohamed Al Mohannadi, Gulf Helicopters CEO about his career and his company, Gulf Helicopter Company.

As a 100% subsidiary of Gulf International Services under the Qatar Petroleum (QP) umbrella, with headquarters in Doha, Qatar, Gulf Helicopter Company is a helicopter services provider mainly servicing the oil and gas industry in the Middle East, Europe, South and West Africa, North Africa and India.

Gulf Helicopter Company is also a shareholder of Redstar Aviation Inc. located in Istanbul, Turkey

 **Can Erel:** Can you share with us a bit about yourself; who is Mohamed Al Mohannadi and where

did your interest in Aviation first come from?

Mohamed Al Mohannadi: I always had an admiration for aircraft and aviation since childhood. When I reached the stage in my life to make the choice for higher education, it was a natural decision to be involved in this admiration and hence I decided to study in the field of aviation. The first of my studies in the field was in London, UK, which was later consolidated in Florida, USA. After obtaining my degrees, I officially took my first step into the industry with Gulf Air at Heathrow Airport as Station Manager.

It was a challenging but also a very enjoyable task where I gained my most valuable experiences that helped shaped my future through hard work put forward on the ground.

 **Can Erel:** How did you cross paths with Gulf Helicopter Inc. and what are

the latest developments so far?

Al Mohannadi: Gulf Air is where I started out in my aviation career. During my time at the company, it was a partnership airline comprised of shareholders from the State of Qatar, the Kingdom of Bahrain,



the Emirate of Abu Dhabi (on behalf of the United Arab Emirates), and the Sultanate of Oman. After spending my years in various departments within Gulf Air with overseas responsibilities, my paths crossed with Gulf Helicopters Inc., a subsidiary of Gulf Air at the time. I initially took on the role of Marketing and PR Manager at Gulf Helicopters Company in 1994 and was appointed as the CEO of the organization in 2008.

Can Erel: What can you say about your company's current aviation capabilities and activities?

Al Mohannadi: Gulf Helicopters is one of the leading commercial aviation services providers in the world. Our global footprint extends from Europe to Africa to the Middle East to South Asia and to the Far East. Founded in 1970 with the primary objective of catering to the needs of Qatar's Oil and Gas Industry, the company has grown over the years by leaps and bounds to successfully become a leading global aviation services provider. Gulf Helicopters has evolved

to become a very unique organization in our field of operations with our fully owned and operated multi-type fleet, outstanding engineering capabilities under the roof of our in-house developed MRO, and state-of-the-art Flight Simulator Training Devices for Leonardo AW-139 and AW-189 types.

Now, regarding some of the activities undertaken by Gulf Helicopters; from our humble beginnings, we have grown over the years as an International Aviation Service provider serving both Domestic and International Oil and Gas Companies and numerous other globally recognized major clients. Over the years, we have earned ample recognition across the world operating from Europe to the Middle East and to the Far East. Our global footprint covers our current and past operations in countries such as the State of Qatar, Turkey, Germany, Denmark, Malta, Libya, Sudan, South Africa, the Republic of Iran, the Republic of Yemen, the Sultanate of Oman, Kuwait, the Kingdom of Saudi Arabia, Pakistan, India, Malaysia, Thailand,

Morocco, Tunisia and Timor-Leste.

Can Erel: How did your company become interested in Turkish aviation? What would you like to say about the current and future activities of Gulf Helicopters Inc.?

Al Mohannadi: We as Gulf Helicopters Inc., have always been interested in extending our scope of operations overseas whether it be in the form of a commercial partnership or as shareholders in local operators within the areas of interest. Turkey has been a long-standing part of our investment strategy where we have participated in some large-scale international tenders. Realizing the volume and growth potential of the Turkish aviation industry, we have taken an undoubted decision of establishing a presence in Turkey.

We became a shareholder of Redstar Aviation (www.redstar.com.tr) in mid-2015 after local approvals and procedures and have been focusing on developing the company's activities through re-structuring of the organization and by setting our mid and long-term targets. The acquisition of shares in Redstar Aviation has been a different challenge for us since Gulf Helicopters Inc. is solely focused on rotor-wing operations whereas the core-business of Redstar Aviation has been—and still is—heavily focused on the provision of fixed-wing air ambulance

services. This convergence of the two companies has introduced new horizons in the service diversification of Gulf Helicopters Inc.

At the time of acquisition of Redstar shares, the company was in an 'idle' position, so to speak, with limited assets—a single turboprop aircraft—and the extent of its limited activities as one low-range workhorse. Thanks to our team, Redstar Aviation has now become a globally recognized and internationally accredited air ambulance operator in the field of fixed-wing operations and is steadily establishing its presence in becoming an offshore operator at an identical level with Gulf Helicopters Company.

Gulf Helicopters Company will continue to invest in the Turkish aviation industry, collectively in Redstar Aviation and for other possible ventures. We will do our best to add value and create a mutually beneficial financial environment by transferring the excellent know-how and providing enrichment through the wide-ranging experience in our sphere of operations that has accumulated over the last five decades during our long history.

Can Erel: How do you see Turkey's position in your company's future business projections?

Al Mohannadi: We see Turkey as an integral part of our operations and as a crucial part of our



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INTERVIEW

future growth strategy. Thanks to Turkey's natural geographical position, being located there places us at a crossroads between the East and the West, as well as the North and the South and places us at an arm's length to a very large geographic and economic area. Turkey's large and well-trained young population, the ever-growing aviation industry, the ultra large scale infrastructure investments undertaken by the Turkish government has made it even more appealing for organizations who are interested in investing further in Turkey.

Besides all of the above, we have a tangible case in Redstar Aviation which has fully met our expectations through the demonstrated pace in growth within the last five years of our existence in the Turkish market. We are currently operating four Bombardier Learjet 45XR's for global air ambulance operations and two Leonardo AW139 Helicopters for domestic offshore operations with

concrete plans to expand the fleet with two more aircraft for each fixed-wing and rotor-wing segment in FY 2020. When we became shareholders in Redstar Aviation in 2015, there were only 12 employees on our payroll. As of Nov. 2019, the company's headcount is only two employees short of becoming a triple-digit number at 98. Additionally, we have recently invested in an Aircraft Maintenance and Parking Hangar at Istanbul Atatürk Airport which I believe is a strong

indication of our vision in Turkey.

We, as Gulf Helicopters Inc., in principle, prefer that our actions verify our intentions and commitments rather than the words that are spoken from anyone's mouth. The very tangible example of our future projections related to Turkey is set by Redstar Aviation which I believe is the largest Foreign Direct Investment made for an Air Taxi company in Turkey. Unfortunately, I cannot verify the same

as no date is available on the subject matter but perhaps Aviation Turkey might do the research and bring a conclusion to my proposition.

 Can Erel: Will we be able to see your industrial and aviation activities (i.e. MROs or pilot and maintenance personnel training centers) in our country soon?

Al Mohannadi: Most certainly yes!

We, as Gulf Helicopters Inc., are also very interested in extending our presence in Turkey by diversifying our portfolio. A few years back, we actually had an attempt to place our second Flight Simulator Training Device in Istanbul but without success. I would hate to give negative publicity, but I also feel myself obliged to mention that due to the lack of co-operation between the governmental agencies, we had to channel our investment to another country. Nevertheless, we



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have not given up and will continue to pursue other opportunities to expand our activities in Turkey.

One other area of potential activity, as you rightly mentioned, is in the field of MRO services. We have already started working on mirroring the capabilities held by Gulf Helicopters Inc. in Doha to Redstar Aviation in Istanbul to serve the local operators and neighboring countries under the roof of our very recently acquired hangar facility at Istanbul Atatürk Airport. On the other hand, we have learned through experience by operating Bombardier Learjet 45XRs that there is a huge flow of expenditures from Turkish private aircraft owners to European MROs. We have identified this segment as an area of potential investment and are currently considering our options on whether to develop our internal capabilities or to access the same market through another M&A.

Can Erel: What are your expectations from Turkey and Turkish aviators to meet your plans and objectives?

Al Mohannadi: We have special relations and ties to Turkey. It has always been more than business or anything in the form of business. Hence, we always only wish the very best for Turkey and its people. As we spend more time in the Turkish market, we realize that Turkey has deep roots in the field of aviation. Turkey is a country that is capable of even manufacturing their own helicopters! The blend of such capability together with the cultivated young population is making life quite easy for us. We expect Turkey to remain on this path and to set an example for countries like us among which trade would develop on a natural basis.

The only area we would humbly advise upon would be for the establishment of

an environment conducive to foreign direct investors such as Gulf Helicopters Inc. among many others. As an aviation professional that has been operating and investing in a variety of countries in different continents, I strongly believe that there is much to be fulfilled in Turkey and at the current age of communications and finances, it is vital to attract investments. However, the most important of all are sustainability and value-

adding investments which we believe have been afforded to the Turkish aviation industry.

Erel: Is there anything you would like to add?

Al Mohannadi: Thank you very much for giving me the opportunity to express myself and convey my thoughts in this invaluable magazine. I must also confess most importantly that I congratulate you for achieving such a high-quality product under the name of Aviation Turkey in such a short period of time. The last issue of Aviation Turkey that I reviewed is already a self-spoken example of an educating, guiding and inspiring publication. We wish you best of luck and prosperity with Aviation Turkey's future publications!

Can Erel: Thank you for sharing your time with us, Aviation Turkey. We look forward to visiting soon and seeing Gulf Helicopter Inc. Operations and facilities in Doha, Qatar 🇶🇦



Mohamed Al Mohannadi and Can Erel

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Coronavirus Outbreak Led to 13% Full-Year Loss of Passenger Demand in Asia-Pacific Region

The International Air Transport Association (IATA) announced that its initial assessment of the impact of the Novel Coronavirus 2019 outbreak (COVID-19) shows a potential 13% full-year loss of passenger demand for carriers in the Asia-Pacific region. Considering that growth for the region's airlines was forecast to be 4.8%, the net impact will be an 8.2% full-year contraction compared to 2019 demand levels. In this scenario, that would translate into a \$27.8 billion revenue loss in 2020 for carriers in the Asia-Pacific region—the bulk of which would be borne by carriers registered in China, with \$12.8 billion lost in the China domestic market alone.

In the same scenario, carriers outside Asia-Pacific are forecast to bear a revenue loss of \$1.5 billion, assuming the loss of demand is limited to markets linked to China. This would bring total global lost revenue to \$29.3 billion (5% lower passenger revenues compared to what IATA forecast in December)

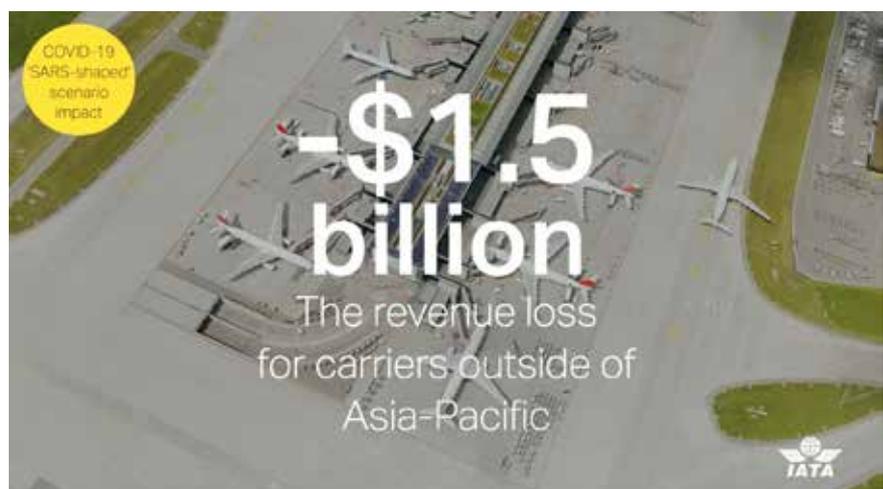


and represent a 4.7% hit to global demand. In December, IATA forecast global RPK growth of 4.1%, so this loss would more than eliminate expected growth this year, resulting in a 0.6% global contraction in passenger demand for 2020.

These estimates are based on a scenario where COVID-19 has a similar V-shaped impact on demand as was experienced during SARS. That was characterized by a six-month period with a sharp decline followed by an equally quick recovery. In 2003,

SARS was responsible for the 5.1% fall in the RPKs carried by Asia-Pacific airlines.

The estimated impact of the COVID-19 outbreak also assumes that the center of the public health emergency remains in China. If it spreads more



widely to Asia-Pacific markets, then impacts on airlines from other regions would be larger.

It is premature to estimate what this revenue loss will mean for global profitability. We don't yet know exactly how the outbreak will develop and whether it will follow the same profile as SARS or not. Governments will use fiscal and monetary policy to try to offset the adverse economic impacts. Some relief may be seen in lower fuel prices for some airlines, depending on how fuel costs have been hedged.

"These are challenging times for the global air transport industry. Stopping the spread of the virus is the top priority. Airlines are following the guidance of the World Health Organization (WHO) and other public health authorities to keep passengers safe, the world connected, and the virus contained. The sharp downturn in demand as a result of COVID-19 will have a financial impact on airlines—severe for those particularly exposed to the China market. We estimate that global traffic will be reduced by 4.7% by the virus, which



could more than offset the growth we previously forecast and cause the first overall decline in demand since the Global Financial Crisis of 2008-09. And that scenario would translate into lost passenger revenues of \$29.3 billion. Airlines are

making difficult decisions to cut capacity and in some cases routes. Lower fuel costs will help offset some of the lost revenue. This will be a very tough year for airlines," said Alexandre de Juniac, IATA's Director General and CEO.



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On the 75th Anniversary of the International Civil Aviation Organization

Air Transportation in the World and Turkey



by Can Erel



Civil aviation, which can be regarded as the use of aircraft in passenger and freight transportation in the world, made great progress after World War II, in the mid-1940s, by modifying and using military (fixed wing) aircraft, which were out of service..

After a while, the search for more capable and comfortable aircraft took place and planes in the turbofan power group, called jets in commercial airline transportation, were put into commercial service and developed rapidly. This process was known with the Comet (de Havilland DH 106)

in the late 1940s, the "Jet Age" that started with the Boeing 707 in the late 1950s, and Boeing 747 (Jumbojet), which led to a new age of commercialization at the beginning of the 1970s. This development in aircraft made the world smaller with unpredictability in terms of passenger and freight and led to creative destruction and it shaped a new way of doing business.

In order to meet the need for necessary standards in airway transportation that was spreading widely throughout the world, international

aviation organizations and organizational associations based on collaboration started to become established since the 1940s. Thus, it was possible to establish collaborations with a global understanding regarding various aspects such as attrition, legal, economic, commercial, environmental and industrial regulations. In terms of industry, globally accepted design, manufacturing, operation, maintenance-protection-deactivation standards enabled the aviation industry to develop in parallel with developing technology by providing

sustainable safety/security.

The International Civil Aviation Organization (ICAO), founded as the specialized organization of the United Nations (UN) pursuant to the Chicago Convention dated December 7, 1944, is the first and still the most important organization that comes to mind on this topic and has 193 member countries today.

The ICAO, in brief, is an organization that sets the standards and rules for aviation safety, aviation security, and effective and environmentally compatible aviation,

makes plans for technology development, ensures cooperation between all member states in aviation, and guides the member states on international air transport issues, and also identifies economic policies and establishes legal regulations.

The decision-making bodies of the ICAO, which operates according to the conventional UN administration and organizational structures and procedures are the Assembly and the Council. The ICAO Assembly convenes every three years with the participation of all members and determines the members of the ICAO Council (today 36 members). The ICAO Council is a continuous organizational structure and is under the responsibility of the Assembly.

The President of the ICAO Council is elected by the council members for a period of three years. In the election of the presidential council held in November, Salvatore Sciacchitano, Italy's former General Director of Civil Aviation and Italy's current ICAO Permanent Representative, was selected as the ICAO Council President for a 3-year term and as of January 1, 2020, he took over from the previous

President Dr. Olumuyiwa Benard Aliu as the new President.

The ANC (Aviation Navigation Commission) and the committees, as well as the Panels, Working Groups and specialized aviation experts are under the responsibility of the Council.

The ICAO Secretariat decides what types of experts from which countries/international organizations will participate in the ICAO Panel and Working Groups, excluding those related to the aviation safety which are evaluated and decided by the ANC. Within these groups, the first studies are made for the change, update of various manuals and circulars and if necessary for the preparation of new ones, related to the aviation standards and recommendations (SARPs), air navigation procedures (PANs) having taken part in the Chicago Convention Annexes and for their applications, the first drafts are prepared and subsequently submitted to the ANC or the ATC and for Council approval.

The Secretary General is Head of the ICAO Secretariat and there are 5 bureaus within it, namely the Air Navigation

Bureau, Air Transport Bureau, Technical Cooperation Bureau, Legal Bureau and the Bureau of Administration and Services. The ICAO Secretary General is elected for a three-year term, just like the President of the Council. Elected for the second time, the current Secretary General Dr. Fang Liu will serve until July 2021.

What were the activities of the ICAO for this special day, celebrating its 75th anniversary?

The 7th of December, International Civil Aviation Day, aims to help generate and reinforce worldwide awareness of the importance of civil aviation in the social and economic development of states, the role of the ICAO in the safety, efficiency and regulation of international air transport. This last year, "International Civil Aviation Day" was an even more special day as it was the 75th anniversary of the signing of the "International Civil Aviation Convention". For this special year, the ICAO published a global call for celebrations to share their events on social media on how civil aviation affects life

worldwide, how it can take people to dream locations, how it connects people with their loved ones, how it plays a role during work and travel (with keywords #ICAO75, #FLYDAY, @ICAO) and many people shared the most inspiring stories with the world on December 7, 2019 via their posts within this context.

Relationship between the ICAO and Turkey

Turkey was elected as a member state to the Council in the Assembly meeting of the ICAO in 1947 for three years and our nominations in 1977, 1980 and 1983 were not concluded due to the vote split. Because of bilateral problems, mostly political, in the field of civil aviation since the 1970s and the increasing importance of civil aviation on a global scale, and based on the acceleration of the developments and prospective studies in our country in this field, a Bureau, responsible for ICAO activities, was established in 1978 in the Ottawa Embassy to closely monitor the ICAO's activities and this Bureau was transformed into a Permanent Representation in 1990 in Montreal. In the 39th ICAO Assembly held in Montreal on September 27-October 7, 2016, Turkey received 156 votes of 172

ARTICLE

states in the election and was elected the a member of the ICAO Executive Committee after 66 years, however during the 40th ICAO General Assembly held between September 24 and October 4, 2019, it lost its ICAO Council Member status. It is of great importance for Turkey to be reelected as a Council member in the elections that will take place in 2023.

Despite being one of the first 10 countries of the world in terms of air transportation, but not having taken part as a member in 36 ICAO Council sessions for the periods of 2019-2022, I would like briefly to evaluate Turkey's air transport activities.



With the appointment decree published in the official gazette dated December 7, 2019 Ambassador Suat Hayri Aka has been serving as the ICAO Turkey Permanent Representative.



With the effect of the free market economy (globalization), which started to develop and spread around the world in the second half of the 1970s, flight route restrictions began to loosen up and competition among airline companies began to increase. While this competition caused a decrease in airfares, airline companies in search of profitability started to seek out optimization in their operation focusing on areas such as range, time and passenger capacity, which caused pressure on aircraft manufacturers to produce fuel-efficient aircraft. Along with the effect of developing communication technologies, environmental protection awareness was also on the rise and spread rapidly across the world and the effects of such awareness

was reflected in regulations that impacted aircraft manufacturers which started to work on lighter and more efficient aircraft within low-noise and low-emission power groups. On the other hand, the free market economy also had an impact on the abolishment of state monopoly which brought forth liberalization in the aviation industry and enabled private investors to invest in aviation.

As a positive consequence of privatization, competition and quality in the aviation industry began to improve significantly. As a result, while civil aviation had become a major driving force of economies - in cooperation with the developing tourism sector, at the same time it has taken its place at the forefront of industry branches that are most sensitive to the effect

of economic flux and dynamics. In other words, civil aviation as an industry that is directly dependent upon global economic parameters but also directly affects global economic parameters, has also been adversely affected by all economic crises in the world, and has even made direct and important contributions to mitigating these negative effects.

The September 11, 2001 attack and the subsequent implementation of extreme security practices and the 2008 global economic crisis which instigated additional cost effect and innovative management and organizational practices hold an esteemed and important place in the development of the aviation industry.

According to ICAO data, the number of scheduled airline passengers in the world was recorded as 4.3 billion in 2018. There was an increase in airline passenger movement (arrival/departure), which was 100 million in the 1950s in the world, to 8.6 billion in scheduled airline passenger in 2018, and the "Air Trip per Capita" which is the ratio of passengers using air transportation to the population, which was 0.000038 (0.1/2600 million), recorded as 1.132 (4.3/7.6 billion) at the end of 2018 indicate that this demand has increased 29.789 times over the last 60+ years. This fact once again reveals the importance of the unity of global understanding and implementation in the legal, economic, commercial, environmental and industrial fields.

The content which is referred to below on "Developments in the World and in Turkey" was arranged according to 2018 data of the Turkish Civil Aviation Assembly Sector Report, prepared by the Turkish Union of Chambers and Commodity Exchanges Turkish Civil Aviation Assembly Sector, where I currently serve as the Vice President responsible for Education/Training, and R&D.

Airway Transportation in Turkey with Facts and Figures

Despite all the political and economic problems in the world in recent years, airway transportation continued its development and contribution to the global economy in 2018.

Having a strategic geographical location in the middle of Asia, Europe and Africa continents, our country is located on the flight routes between developed and developing markets.

Despite the slowdown in 2015 and 2016, our country's airway transportation started to rise again in 2017 and 2018. In 2018, total passenger traffic increased by 9% compared to 2017 and reached 210,498,164 passengers. Adding the number of direct transit passengers to this figure, the total number of passengers was recorded as 210,947,639 in 2018.

According to ICAO 2017 data, Turkey:

- Ranked 11th in revenue tons-kilometers and passenger-kilometers on scheduled service
- Ranked 12th in freight tons-kilometers performed on scheduled services

• In international flights

- Ranked 8th in tons-kilometers on scheduled service

- Ranked 9th in passenger-kilometers on scheduled service

The total flight destinations of our airlines continued to increase in 2018; our 5 airlines operated flights from 7 centers to 56 destinations in domestic flights and 318 destinations in 124 countries in international flights.

The civil aviation industry in our country employed 196,041 personnel in 2017, with a total industry turnover of US\$ 24.31 billion. The 2018 forecast is 205,000 personnel and US\$ 29.46 billion.

According to the study made by the Turkish Exporters Assembly:

- Turkey ranked 3rd in the export of air transportation services in the world in 2017 after the US and UAE.
- Passenger transportation export in 2016 and 2017 was approximately 47% of the total service export.
- 5 aviation companies took place in the list of top 10 exporters list of 2017.

As Istanbul became one of the largest global transit centers in the world, the total number of incoming and outgoing

passengers served at Istanbul airports in 2018 exceeded 100 million for the first time.

With the capacity generated at Istanbul Airport and with the rapid increase in passenger and freight traffic, it is expected that Turkey, which is amongst top ten countries in the world, will raise this level and contribute more significantly to global air transportation both in domestic lines and international lines, as a global transit hub. It is no secret that this development will reach a much more remarkable level with important developments in industrial and intellectual layers.

I sincerely congratulate those who have made great efforts in the Turkish aviation industry; I commemorate each of them with gratitude, wishing mercy to those passed away and health to those who are with us. I congratulate once again the "International Civil Aviation Day" of my elders and colleagues, who have set their hearts on aviation, have careers in aviation and/or have contributed and presently contribute to the development of aviation. I wish all my colleagues secure and safe activities and flights 🌍



Airspace Closure: The Invisible Power of Countries

by Muhammed Yilmaz

Following the tragedy of the Ukraine International Airlines airplane, which had departed from Tehran and was shot down by a missile, many airlines changed their flight routes claiming that Iranian airspace was no longer safe. What do these types of changes in flight courses mean for the airlines and for the countries that would not be flown over anymore? How is airspace utilized to a country's advantage, what potential power does it hold and how is it a source of income?

After Iran Islamic Revolutionary Guard Corps Commander - Major General Qasem Soleiman's death from the U.S.' bombing of Baghdad Airport on January 3, 2020, the world focused on Iran's reaction.

When we woke up on the morning of January 3, we came across the news informing that Iran Islamic Revolutionary Guard Corps hit certain

U.S. Bases in Iraq and nearly 20 minutes later, we learned that the UPS-PSR registered 3.5-year old Boeing 737-800 of Ukraine International Airlines airplane taking off from Tehran and destined to Ukraine under the flight number PS-752 crashed in Parand near Tehran. It was immediately clear that there was an extremely complicated crisis unfolding and a lot at stake!

The picture became clearer as we observed the first news in the global press and started to piece it together. Iranian officials claimed that the airplane crashed due to a technical difficulties after they completed the world's fastest flight accident investigation. They went further to announce the category of the technical fault. According to Iranian

officials, one of the engines of the airplane burst into flames causing the pilots to lose control.

These urgent announcements revealed that they were in fact intending to cover certain realities. The images of the wreckage contained critical clues regarding the crashed airplane. The shrapnel marks over the parts of airplane seemed

to signal a murderer leaving his fingerprint at the murder scene. The quirky statements of the Iranian officials claiming that the black box of the airplane would not be shared with Boeing raised heavy doubts and as the different images on the fall of the airplane started to circulate on social media, the mystery was unveiled.

The written statement of the Iranian General Staff dated January 11 expressed that while flying over a sensitive military zone, the airplane was shot down due to a “human error” of the air defense system. The Foreign Affairs Minister apologized for the disaster and claiming that this was an unforgivable mistake and Iran’s Supreme Leader Ali Khamenei assured that the persons in charge of this mistake would be punished severely. All and all, 167 passengers and a flight crew of 9 people were killed because of a ‘faulty’ step of the Iranian officials.

Afghanistan benefited from the closure of Iran’s airspace!

The airspace of Iran was provisionally closed. After a while,



Afghanistan Airspace on flightradar24

FAA and EASA lifted the closure of the airspace however many airlines avoided using Iran’s airspace even for transit passages. Afghanistan surely benefited from the airlines’ changes in flight courses due to safety requirements. Many airlines headed towards Afghanistan’s airspace instead of Iran particularly during the flights between Europe and India and Southeast Asia.

Shortly after the shooting down of the Ukrainian airplane, the daily number of airplanes using Afghanistan’s airspace reached a record beating figure of 415. Though there may be a slight decrease in these figures as certain airlines

decided to apply their standard courses via Iran’s airspace, the daily average of 390 transit overflights is still way above the usual utilization of Afghanistan’s airspace.

Taking into consideration the fact that the payment for each transit overflight is US\$ 700, it may be concluded that Afghanistan’s revenue from the overflights increased by US\$ 100,000 per day. With an aim to progress in the area of aviation Afghanistan has been planning since last July to increase the daily fee for overflights to US\$ 950. The overflight fees are the country’s third greatest source of income after customs and communication sectors.

Syrian airspace has remained closed for 10 years!

In the beginning of 2010, a civil war – that has lasted nearly 10 years – broke out in Syria located in the heart of Middle East. The whole country turned into a battlefield. For that reason, airlines were rerouting their flights to avoid flying through Syrian airspace.

As a result of the negotiations held with the Syrian government in 2019, The flag carrier of Qatar, Qatar Airways became the first foreign airline that started to use Syrian airspace after quite a long while.

ARTICLE

Qatar Airways started to use Syrian airspace for the flights conducted to Lebanon's capital Beirut and Larnaca in South Cyprus. Within the aforementioned 10-year period, Syrian airspace was merely used by Lebanon's national airlines - the Middle East Airlines just a few times.

Qatar Airways' flights from Doha to Beirut and Larnaca used to be conducted over a much longer course upon the Saudi Arabia's decision on closing its airspace to the flights of Qatar Airways in 2017, this increased the flight duration and Qatar Airways experienced a severe financial loss of due to increased fuel consumption expenses.

Carriers typically follow the shortest great-circle paths unless hindered by closed or hazardous airspace, or factors such as poor weather.

Upon the decision of opening the airspace, the duration of the Beirut - Doha flight conducted by Qatar Airways over Damascus by Boeing 787 airplane is shorten the time to 2 hours and 26 minutes from 3 hours and 26 minutes that avoiding Syrian airspace. Even the slightest amount of fuel saving is of vital importance on a commercial flight,



therefore the fuel savings due to a 'one-hour decrease in flight duration' became a significant added value for the airlines. When Qatar Airways started to use Syrian airspace again it became an additional source of income for Syria which is striving to resurrect its economy.

What is airspace? Why is it critical?

Airspace is a term used for defining the portion of the atmosphere controlled by a country above its territory, including its territorial waters or, more generally, any specific three-dimensional portion of the atmosphere. When regarded in terms of the area it covers, the largest regular division of airspace in use in the world today is the flight information region

known as FIR. Every country's airspace is divided into one or more flight information regions depending on the size, location and the air traffic of the country. Turkish airspace which is approximately 1 million square kilometers is divided into two flight information regions, namely the Ankara FIR and Istanbul FIR; The United Kingdom's airspace is divided into two regions composed of Scottish FIR and London FIR.

In accordance with the Chicago Convention signed in 1944, every State has complete and exclusive sovereignty over the airspace above. All states that are parties to the convention are obliged to allow the utilization of their airspaces by other states' airplanes without "prior authorization" (except for scheduled international flights).

How does the closure of airspace affect airlines?

Severe competition, global economic slowdown, increasing fuel prices and the pressure of the authorities in reducing emissions has a serious impact on the profit margin of airline companies.

The decision on closing certain airspaces over the standard course of airlines implies that a longer flight must be planned to bypass the closed airspace. This indicates longer flight duration and higher fuel costs. The natural outcome of all the aforementioned parameters is the flight tickets with higher prices.

Alternative flight routes increase operational costs and



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Warsaw Convention

Convention for the Unification of Certain Rules



by Lale Selamoğlu Kaplan



Relating to international carriage by air

The Convention for the Unification of certain rules relating to international carriage by air, commonly known as the Warsaw Convention, is an international convention, which regulates liability, in the event of an accident, for international carriage of persons, luggage or goods performed by aircraft. The Convention was the first comprehensive legal framework governing aviation at the international level, playing an essential role in supporting the development of the sector and establishing a set of principles, most of which are still effective and constitute the basis of modern aviation law.

The convention of 1929 came into force on 13 February 1933. The Warsaw Convention was established to create a legal basis for commercial aviation, both cargo and passenger. Specifically, it allowed for the basis of liability to be assigned to air-carriers in the event of an accident.

This Convention mandates carriers to issue passenger tickets; requires carriers to issue baggage checks for checked luggage; creates a limitation period of 2 years within which a claim must be brought; and limits a carrier's liability (maximum of 125,000 Poincare francs (approx. 16,000 USD) for personal injury; 250 Poincare francs per kilogram for checked luggage and cargo; 5,000 francs for the hand luggage of a traveler). The sums limiting liability shall be deemed to refer to the

French franc consisting of 65 milligrams gold of millesimal fineness 900, which may be converted into any national currency in round figures.

While the limits of the Warsaw Convention remained insufficient with the economic growth, the ICAO council convened a Diplomatic Conference held on September 1955 at The Hague at which the Warsaw Convention of 1929 was amended by The Hague Protocol, after extensive studies. The limit of liability with respect to persons had been doubled to 250,000 francs; in other respects, the Protocol made only minor adjustments or clarifications, and contributed to some simplifications of the documents of carriage. The Hague Protocol to the Warsaw Convention entered into force on 1

August 1963.

Formally entitled Convention Supplementary to the Warsaw Convention for the Unification of Certain Rules Relating to International Carriage by Air Performed by a Person other than the Contracting Carrier, a new convention was developed and signed at the Diplomatic Conference held in 1961 at Guadalajara, Mexico, for further efforts to advance the cause of passenger rights. This Protocol held carriers strictly liable for up to 1,500,000 francs (US\$100,000) of proven damages in the event of passenger death or injury, but that amount constituted an unbreakable limit on liability per passenger, even if the carrier engaged in willful misconduct. (Willful misconduct generally means a knowing violation

of a reasonable and uniformly enforced rule or policy. It means intentionally doing that which should not be done or intentionally failing to do that which should be done, knowing that injury to a person will probably result or recklessly disregarding the possibility that injury to a person may result.)

The 1975 Montreal Protocols

At the 1975 diplomatic conference, called primarily to deal with cargo issues, the key substantive provisions of the Guatemala City Protocol were incorporated into Additional Protocol No. 3 to Amend the Convention for the Unification of Certain Rules Relating to International Carriage by Air, as amended by The Hague Protocol and the Guatemala City Protocol, done at Montreal September 25, 1975 ('` Montreal Protocol No. 3'). In translating the Guatemala City Protocol provisions into the Montreal Protocol No. 3, the only change in content was the replacement of the gold standard with the currency conversion formula based on ``Special Drawing Rights".

(hereinafter referred to as ``SDR," which is an artificial `basket' currency developed by the International Monetary Fund for internal accounting purposes.)

An SDR is an international reserve asset created by the International Monetary Fund. Under Article 23 of the Montreal Convention 1999, SDRs shall be converted into local currencies in terms of SDR at the date of the judgment. This means that the revised rates will apply to any judgments delivered after 28 December 2019, irrespective of the date of filing suit.

Also negotiated at the same diplomatic conference as Montreal Protocol No. 3 was the Protocol to Amend the Convention for the Unification of Certain Rules Relating to International Carriage by Air, as amended by The Hague Protocol, done at Montreal September 25, 1975 ('` Montreal Protocol No. 4'). Among other things, this Protocol eliminated the outmoded cargo documentation provisions of the Warsaw Convention, thereby facilitating the application of electronic commerce to international air cargo.

For example, Montreal Protocol No. 4 eliminated the need for consignors of cargo to complete detailed air waybills prior to consigning goods to a carrier. In place of such detailed air waybills, consignors could use simplified electronic records of facilitate shipments.

Finally, there were two other Protocols negotiated at the 1975 diplomatic conference,

referred to as Montreal Protocols numbers 1 and 2. These protocols related solely to the conversion from a gold standard to the SDR standard for purposes of calculating all quantitative limitations on liability under the Warsaw Convention and under the Warsaw Convention as amended by The Hague Protocol.

IIA - IATA intercarrier agreement

The International Air Transport Association (IATA) convened a worldwide Airline Liability Conference in Washington, D.C., USA, in 1995. The report of the Conference proposed the establishment of two working groups to further study and prepare drafts for a proposed inter-carrier agreement, as follows:

- 1) To urgently assess and report on the cost impact on airlines of an enhanced liability package;
- 2) To further consider and report on appropriate and effective means to secure complete compensation for passengers, when required.

The resulting IATA Intercarrier Agreement on Passenger Liability ("IIA") was unanimously endorsed on 31 October 1995 at the 51st Annual General Meeting of IATA held at Kuala Lumpur, Malaysia in 1995; the airlines who signed this agreement

would undertake to waive the liability limits and limit the force majeure defense in regard to passenger claims. The IATA Secretariat then initiated an intensive effort to elaborate acceptable provisions to implement the IIA.

MIA - IATA Agreement on Measures to Implement the Inter-carrier Agreement

The IATA Agreement on Measures to Implement the Inter-carrier Agreement

("MIA") was developed; the IATA Legal Working Group met at Montreal on 3 April 1996 and the MIA was opened for signature by the air carriers; it became effective on 1 April 1997.

As the countries are signatory parties to Warsaw Convention and the amending Protocols, airlines were signatories to IIA and MIA.

The successive modifications of the 1929 Warsaw Convention, coupled with increasing mobility of passengers and the globalization of the air transport industry, have resulted in a high level of complexity and fragmentation of the Warsaw System, and a corresponding loss of relevance for the travelling public and the air transport industry. The above developments finally led to the ICAO seeking to draw up a new convention to replace the Warsaw System. The ICAO Legal

Committee, at its 30th Session held in Montreal in May 1997, approved the text of a draft Convention for modernizing the Warsaw System of air carrier liability, to be adopted later by a Diplomatic Conference.

1999 Montreal Convention - convention for the unification of certain rules for international carriage by air

The Montreal Convention 1999 is a treaty that was made with the aim of unifying the existing rules of international carriage by air. It was envisaged that the convention would be a universal treaty for governing airline liability in the case of death or injury to passengers, as well as in cases of delay, damage or loss of baggage and cargo.

There are currently more than 135 parties to the Warsaw Convention either in its original form or one of its amended forms. Some countries separately have adopted laws or regulations relating to international carrier liability. In addition, as noted earlier, there are private voluntary agreements among carriers relating to liability like IAA and MIA. The result of these many instruments is a patchwork of liability regimes. The new Convention is designed to replace the Warsaw Convention and all of its

related instruments and to eliminate the need for the patchwork of regulation and private voluntary agreements.

The Montreal Convention (formally, the Convention for the Unification of Certain Rules for International Carriage by Air) is a multilateral treaty adopted by a diplomatic meeting of ICAO member states in 1999. The Convention attempts to reestablish uniformity and predictability of rules relating to the international carriage of passengers, baggage and cargo. Whilst maintaining the core provisions which have served the international air transport community for several decades (i.e., the Warsaw regime), the new treaty achieves modernization in a number of key areas.

The most significant changes have occurred regarding the liability of air carriers in case of passenger's injury or death.

Montreal Convention consists of a preamble and a total of 57 articles, which are grouped into seven chapters. The Convention retains the structure of the Warsaw Convention and has the same scope of application as the original Convention from 1929.

The most notable features of the new Convention include:

(1) it removes all arbitrary limits on recovery for

passenger death or injury,

(2) it imposes strict liability on carriers for the first 100,000 SDR of proven damages in the event of passenger death or injury,

(3) it expands the bases for jurisdiction for claims relating to passenger death or injury to permit suits in the passenger's homeland if certain conditions are met;

(4) it clarifies the obligations of carriers engaged in code-sharing operations; and

(5) it preserves all key benefits achieved for the air cargo industry by Montreal Protocol No. 4.

The Convention generally is limited by Article 1 to commercial international air carriage, including flights between two States Parties to the Convention or a round trip from a State Party to the Convention with an agreed stopping point in another State, regardless of whether that State is party to the Convention.

Articles 3 through 11 of the Convention discuss documentation requirements for international air carriage of passengers, baggage, and cargo. Most significantly, they preserve the benefits to the cargo industry achieved under Montreal Protocol No. 4, including the elimination of the need for consignors of cargo to complete detailed airwaybills prior to consigning goods to a carrier. Under the new provisions, as under Montreal Protocol No. 4, consignors may use

simplified electronic records to facilitate shipments. Articles 12 through 16 address the relative rights and obligations of carriers, consignors, and consignees of air cargo.

Article 17 defines conditions required for carrier liability for harm to passengers, including a death or bodily injury and an accident occurring within a defined time frame. Article 17 also contains rules for carrier liability for lost, damaged or destroyed baggage, just as Article 18 contains such rules for cargo. Liability for damages associated with the delay of passengers, baggage or cargo is addressed in Article 19. Consistent with provisions of the Warsaw Convention and its related instruments, Article 20 details the conditions under which a carrier can exonerate itself, wholly or partly, from liability by showing, for example, that the person claiming compensation caused or contributed to the damage by negligence or a wrongful act or omission.

The Convention, at Article 21, eliminates all arbitrary limits on air carrier liability with respect to accident victims. The carrier may avoid liability for the full amount of damages only if it proves that it was not negligent or that a third party was solely responsible for the damages. Thus, victims or

their heirs may recover all provable damages allowed under applicable State law, in contrast to the arbitrary caps under the Warsaw Convention and its related instruments. As a further benefit for accident victims, Article 21 holds carriers strictly liable for the first 100,000 SDR of proven damages for each passenger, i.e., the carrier may not avoid liability for this amount, even if the carrier can prove that the harm was not caused by its negligence. The only exception to this strict liability is that the carrier may be able to avoid paying any damages under the exoneration (i.e., contributory negligence) provisions of Article 20.

Two-tiered liability regime

First Tier: Under the Montreal Convention, air carriers are strictly liable for proven damages up to 100,000 SDR revised:128.821 special drawing rights (SDR).

Second Tier: Where damages of more than 100.000 SDR revised:128.821 SDR are sought, the airline may avoid liability by proving that the accident, which caused the injury or death was not due to their negligence or was attributable to the negligence of a third party and this second tier has no limit. This defense is not available where damages of less than 128.821 SDR

Revised limit (SDRs) as of 28 December 2019	
Article 21	
Compensation in Case of Death or Injury to Passengers	100,000 113,100 128,821
Article 22, paragraph 1	
Limits of Liability in Relation to Delay	4,150 4,694 5,346
Article 22, paragraph 2	
Limits of Liability in Relation to Baggage	1,000 1,131 1,288
Article 22, paragraph 3	
Limits of Liability in Relation to Cargo	17 19 22

are sought. Article 22 generally preserves limits on liability in relation to delay, baggage, and cargo. These limits;
 5,346 SDR for delay of passengers;
 1,288 SDR per passenger for claims related to baggage;
 22 SDR per kilogram for cargo.

Article 24 of the Convention provides for inflation based increases every five years of the various SDR amounts and limits that remain in the Convention. Operation of the provision would result in inflation-based increases whenever the inflation factor exceeds ten percent at the time of a review. However, if a majority of States Parties register timely disapproval of an increase, then the matter is referred to a meeting of States Parties. This provision applies to the limit of "strict" liability set by Article 21 for passenger claims and the Article 22 limits in relation to delay, baggage and cargo.

Article 25 acknowledges the rights of carriers to stipulate the raising or

eliminating of the limits of liability established by the Convention. As a result of the first review of limits of liability conducted by ICAO in accordance with Article 24,
 The Convention has a provision on advance payments, Article 28, which acknowledges the right of States to have national laws that require their own carriers to make such payments in the event of passenger death or injury and addresses certain procedural issues related to such payments.

The Convention also amended the jurisdictional provisions of Warsaw and now allows the victim or their families to sue foreign carriers where they maintain their principal residence and requires all air carriers to carry liability insurance. The Convention's provision on jurisdiction, Article 33, the creation of a "fifth jurisdiction" to supplement the four bases of jurisdiction provided under the Warsaw Convention. Article 33(1), like the Warsaw Convention, allows a suit to be brought against a carrier in the country:

- (1) of its incorporation,
- (2) of its principal place of business;
- (3) where the ticket was purchased, and
- (4) of destination of the passenger. Article 33(2) of the new Convention allows cases involving the death or injury of a passenger to be brought in the country of the passenger's principal and permanent residence, so long as the carrier provides service to that country, either directly or via a code share or other similar arrangement with another carrier, and the carrier conducts business there from premises leased or owned by it or by a carrier with which it has a commercial arrangement, for example, a code-share arrangement. Given the number of carriers whose operations in the United States satisfy these criteria, this fifth jurisdiction provision should ensure that nearly all U.S. citizens and other permanent residents of the United States have access to U.S. courts to pursue claims under the Convention

Women of Aviation Worldwide Week (WOAW) Begins on March 2nd

by Can Erel

Women of Aviation Worldwide Week (WOAW) is a global aviation awareness week for girls of all ages which is observed to mark the anniversary of the world's first female pilot license (March 8, 1910).

Individuals and organizations involved in the aviation and space industries are offering flying and non-flying events all around the world to raise awareness and introduce women and girls of all ages to multiple facets of the industries. The aim is to foster gender balance by increasing the participation of women. WOAW-relevant events and activities may be registered on the Week's official website, WomenOfAviationWeek.org, managed by the Institute for Women of Aviation Worldwide (iWOAW) to ensure global



Bir toplum aynı amaca bütün kadınları ve erkekleriyle beraber yürümez ise ilerlemesine teknik olarak imkân ve bilimsel olarak ihtimal yoktur.

If a society does not march towards its goal with all its women and men together, it is not technically possible and scientifically probable for such country to develop.

H. Atatürk

visibility.

iWOAW supports and monitors the Week's events, compiles global participation results, distributes the coveted Fly It Forward® Awards, and also grants awards to participants, and publicly recognizes participating organizations with the "Verified Women Friendly" label.

In Turkey, many eligible events have been held in recent years and some won global Fly It Forward® Awards. The only missing element so far at these

events are flights. I hope that more flights will take place this year in Turkey, especially since they may qualify young women for a \$10,000 flight training scholarship offered by iWOAW and its corporate ally, CAE.

The Directorate General of Civil Aviation (DGCA), the civil aviation authority in Turkey, initially issued the "Instruction for Gender Balance Fostering in Civil Aviation" as part of a systematic effort based on an equal opportunities policy to foster gender

balance in the aviation industry. It established the "Gender Balance Fostering Commission" to implement this directive throughout the aviation industry. After the issuance of the instructions to the entire industry, "Women of Aviation Worldwide Week" begun to be officially celebrated in our country where efforts to develop gender balance in our national aviation throughout the year have expanded and the progress is proudly shared with the public.

The 10th annual Women of Aviation Worldwide Week takes place March 2-8 and uses hashtag #WOAW20 in social media.

About #WOAW20

You may find all the details concerning Women of Aviation Worldwide Week by visiting the official website at WomenOfAviationWeek.org

In order to download documents and add planned events to the database, you must subscribe on the website and login. Doing so yields WOAW Points redeemable on the website's store and may make individuals and organizations eligible to win Fly It Forward® Awards if post-event reports are submitted before the March 12 deadline. New methods are also determined for corporate participation and regularly announced on the website as well.

In addition, I have prepared the "CAN'CA Women of Aviation Worldwide Week Guide", as part of the mentoring that I offered to Turkish-speaking countries for the past few years ago, which can also serve as a guide for local event organizers.

Before and during the Week, please share the following on social media with #WOAW20:



- *WOAW event details,*
 - *Stories about past and present women in the air and space industry,*
 - *Highlight of efforts to foster gender balance in the aviation industry,*
 - *The importance and effects of increasing the number and level of women in the industry,*
- And any motivating good news...*

"Gender Balance Symposium 2020" as the

main events of "Women of Aviation Worldwide Week" in Turkey, which will be held with the participation and support of the industry under the auspices of DGCA, observed to mark the opening of the "Istanbul Airport" last year, will be held with the theme "Women at the Airport". Details can be reached at www.tcdg.org.tr web site...

So, what do you do to

foster the gender balance in the national aviation and aerospace industry?

Do you have any activities organized within the scope of Women of Aviation Worldwide Week?

Let's talk.

Contact us and let's raise awareness together...

...to let women, soar!



Let Your Dreams Soar!

Aviatrixes Meet in Istanbul at this year's Women of Aviation Worldwide Week

Under the auspices of the Directorate General of Civil Aviation (DGCA), the "Fostering Social Gender Balance" symposium will be held at the Turkish Civil Aviation Academy (Istanbul) on Wednesday, March 4, 2020, with the theme of "Women in Airports."

Within the scope of the Women Of Aviation Worldwide Week activities, which aims to foster gender balance in aviation by increasing the number and level of women in the aviation industry, this year, within the scope of the Gender Balance Fostering Instruction (SHT-TCD), the Directorate General of Civil Aviation (DGCA) will organize a symposium on "gender balance at the Turkish Civil Aviation Academy (Istanbul) on Wednesday, March 4, 2020, with the theme of "Women in Airports."

In line with the Institute for Women Of Aviation Worldwide (iWOAW), and under the Instruction for Gender Balance Fostering in Civil Aviation (SHT-TCD), DGCA accepted the week covering the 8th day of March every year (between Monday and Sunday) as "Women Of Aviation Worldwide Week" in memory of the first female pilot of the world, Baroness Raymonde de Laroche, obtaining her pilot license on March 8, 1910, and organizes female outreach events throughout Turkey to foster gender balance in aviation.

The DGCA sets up and enforces rules in Turkey to increase sector-based capacity, productivity, and aviation activities and checks the implementation of the regulations set by the International Civil Aviation Organization (ICAO) to ensure that the aviation activities are carried out safely and securely. In this context, within the framework of the "Principle of Equality" in the Turkish Constitution, the DGCA published the Gender Balance Fostering Instruction (SHT-TCD) guide in 2018 to ensure the sustainability of the equality principle and to foster a gender balance in the national aviation industry.

As part of its systematic efforts in the field of developing gender balance in aviation, the DGCA established the "Gender Balance Fostering Commission (GBFC)" and the "Gender Balance Fostering Commission Advisory Board (GBFC AB)" with members from the authority and selected companies, schools and NGOs in the aviation sector to encourage women to consider

education and training areas related to aviation, to monitor gender balance in the civil aviation sector and to develop proposals to foster this balance, and to conduct studies to create equality of opportunities for genders in the selection of aviation professions.

Within the scope of the Symposium which will be held during Women Of Aviation Worldwide Week between March 2-8, 2020, with the theme of "Women in the Airports" due to the commissioning of Istanbul Airport; two panels will be held at the Turkish Civil Aviation Academy titled: "Women in Workforce in the Airport" and "Women in Business & Management in the Airport" on March 4, 2020. The successful female students who

participated in the essay contest related to the women of aviation will also be invited to the event.

You can find detailed information on the Gender Balance Symposium, which aims to contribute to foster gender balance in Turkish civil aviation under SHT-TCD instruction at www.tcdg.org.tr

Editor Note: The date of the Gender Balance Symposium has been postponed due to the fact that Turkish Soldiers were killed in the Idlib region of Syria on 27 February 2020. The rescheduled date of the Symposium will be announced by the Gender Balance Symposium Executive Committee in the coming days..



Toplumsal Cinsiyet Dengesi | *Gender Balance*
Sempozyumu | *Symposium*

"Havaalanında Kadın | *Women in the Airport*"



04.03.2020

Türk Sivil Havacılık Akademisi | *Turkish Civil Aviation Academy*

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Being the First Turkish Female Pilot on an Airbus A380 Aircraft!

Interview with Pilot Safiye Âdemoğlu Türkyılmaz...

The Dubai Air Show has an interesting story and has come to the fore in global trade during the last 25 years. The event was held this year on November 17-21, 2019 in Dubai.

This fair started being organized in 1986 as a small trade fair called "Arab Air" at the Dubai World Trade Center (DWTC). In 1989, it was then organized at Dubai Airport with 200 participants and 25 aircraft covering civil and military aviation. The fair, which was held at El Maktum Airport this year with its growing momentum over time, has become a huge organization with more than 1,200 companies in attendance and 160 aircraft from 87 countries and a business volume of US\$ 54.5 billion.

The Dubai Aviation Fair is a commercial event that is followed with interest in terms of global aviation and it offers a meeting and recreation environment to aviators within the elements of the city that support this fair. As a team, we attended the fair to follow the activities/events realized within the scope of the fair, and to obtain first-hand reviews of the content and publication quality of the second issue of Aviation Turkey magazine, which we have configured as a communication channel between Turkish aviation and global aviation. I also had the opportunity to meet and have a pleasant conversation with Safiye Âdemoğlu Türkyılmaz, another figure in Turkish aviation.

I took the opportunity to meet dear Safiye during the Dubai Air Show, to give place her as "The First Turkish Woman A380 Pilot" in my study titled "Turkish Women in the Development Process of the Turkish National Aviation & Aerospace", where I would like to pay tribute to the leading women aviators in Turkey, and in my conference using this study as a source.

Together with the valuable staff of Aviation Turkey magazine, we conducted a short interview with dear Safiye at the Dubai Shopping Mall as the first of a series of studies that we will do with her in the future.

For our distinguished readers, we wanted to make a difference at

Aviation Turkey magazine at the Dubai Airshow. We met with dear Safiye, who serves in Turkey as a pilot of the Airbus A380 aircraft as the face of the Turkish woman, on November 18, 2019 in Dubai - UAE.

Safiye has been living in Turkey for a long time and has been exciting the Turkish people with her work that make us very proud. While flying all over the world with the A380 aircraft, the world's biggest commercial air vehicle, she keeps our flag flying.

Let's start our short interview...

Can Erel (CE): Hello Safiye, welcome...

Safiye Ademoğlu Türkyılmaz (SAT): Thank you, I'm glad to be here...

CE: You graduated from the Middle East Technical University before you started your profession. First of all, I would like to know how you started working in the aviation sector and how you became a role model.

SAT: Of course, let me tell you briefly. I was born and raised in Bulgaria in a small village. I came to Istanbul when I was 12 years old.

It was my childhood dream to be a pilot... I couldn't become a military pilot due to an eye disorder. Then I applied to the TK Academy and studied in the US.

During this process, I stepped into aviation and now I'm flying an Airbus A380 aircraft.

CE: May I ask the importance of the school you studied at for the level you have reached today in your profession?

SAT: The Middle East Technical University?

CE: Yes, METU!

SAT: Of course, METU expanded my horizons very much.

CE: A university like this has undoubtedly made this path shorter and more effective.

SAT: Yes, certainly...

CE: On this occasion, let's remember those who have established this valuable university and the pride and respect that our METU graduates bring to our country.

SAT: Yes.

CE: What kind of motivation encouraged you in this way when you decided to be a pilot in a different country to fly an aircraft that was not available in our inventory? You have been in a male-dominated occupation for about ten years now, and this platform is a little bit different from others.

SAT: Yes.

CE: How did you feel about it? What did your parents and your spouse feel about your decision?

SAT: First of all, my family did not believe me when I applied to become a pilot; they thought I was not convincing. When they saw that I was successful on this subject later, they supported me a lot.

When I was in Istanbul, flying an Airbus A380 was my dream. But there was



no A380 in the fleet of my previous company. So it was an aircraft I couldn't fly there, but it was always on my mind. There is another pride of flying an A380 aircraft carrying 650 passengers...

I started flying on an Airbus A320 as the First Officer, with my dream of flying an A380... Now I am living the dream of being a pilot in command on this aircraft...

CE: When do you think you will you become an A380 pilot?

SAT: I expect to be an A380

pilot in command within the next 3 years.

CE: You are a married woman with a child, and you are pursuing a longtime dream... Therefore, you can make an evaluation for the biggest concerns of women who think about this issue, as a working mother and for those who are concerned about starting a family and having a child while piloting... Because you are one of the best examples which prove this is very well possible. We would be glad if you could share a bit with us about how your family supports you in such a position...

SAT: Yes, I've been asked this question a lot; what are you doing as a mother, how can you manage this during the flights? First of all, I should mention that a supportive spouse is incredibly important in this regard...

I was constantly telling my son, starting from his babyhood..." look mommy is going to fly now, but I'll be back ..." He's such a mature and understanding child now; Although he's two and



WOMEN IN AVIATION



a half years old, he doesn't cry, when I leave, he waves at me and says "see you mom, have a good flight!".

It is not difficult when there is sympathy and understanding; it's a profession that can be done successfully with family support.

I hereby strongly recommend it to all young girls... If you really have the desire inside your heart, the desire to fly, please do not give up, try hard. Piloting is a profession that can easily be performed with family support.

CE: Is it possible to do this work without support?

SAT: It's difficult without support; raising a child would be difficult, so your spouse must understand you first.

CE: Let's also talk about the issue of gender balance in aviation. This is something that we have been trying to address and develop for a long time. In the aviation industry, you are one of the flag-bearers in our struggle to increase the number and level of women by providing equal opportunities to both genders in the aviation industry. Soon, I'll have

an interview series called "Being a Woman Aviator in this Geography ..."

SAT: Great!

CE: In the first interview in this series, I would like to include this interview with you as "The First Turkish Woman A380 Pilot" and then I would like to refer you, with this title, in the conference titled "Turkish Women in the Development Process of the Turkish National Aviation & Aerospace".

SAT: Sure, thank you very much!

CE: Now, let me hand you over to my other colleagues...

Şebnem Akalın (ŞA): Thank you very much firstly for both taking the time and sharing your experiences with us, because we know that piloting is a difficult job for a woman.

SAT: It looks quite difficult, you're right...

Şebnem AKALIN (ŞA): Although it is difficult, it is not a profession that cannot be achieved as a woman as you have mentioned since the beginning of our interview.

Thank you very much for sharing such beneficial information.

Muhammed Yılmaz (MY):

Thank you very much, first of all, for taking the time ... In fact, I have a question that everyone is often curious about and I am sure you have been this question asked many times. Have ever had an unforgettable moment while flying the Airbus A380, whether negative or positive? Except for your first flight, you probably haven't forgotten your first flight with the A380...

SAT: Absolutely, I couldn't forget my first flight, you're right. However, we haven't experienced any technical problems.

MY: Great; I hope you don't ever experience any issues.

SAT: I hope we don't... the A380 is a long-haul aircraft and it's really safe...

CE: If you have the chance to come back again to this world, would you follow the same path?

SAT: I would be a pilot again, yes!

CE: You are crystal clear?

SAT: So very clear, yes. Actually, I don't have a particular aircraft preference, I just really like to fly.

CE: You took the time for this short interview, you left your child and spouse at home and you were with us on your day off, thank you very much we appreciate it.



And I was looking forward to publishing this valuable interview on a very important day for Turkish aviation and for Turkish women. Finally, the moment came... the 106th anniversary of the flight of Ms. Belkıs Şevket, a member of the "Association for the Protection of Women's Rights" and one of the writers of Kadınlar Dünyası ("The World of Women") journal...

I am really happy to talk about this important day in this article and to be able to commemorate both of the developments led by our proud women.

I had better talk about this day briefly:

Ms. Belkıs Şevket flew on the Deperdussin aircraft named "Ottoman" under the control the pilot Fethi Bey, over the field of the Pilot Ayastefanos Aviation School on December 1, 1913, for the publicity of the Turkish woman and collecting monetary aid

to donate a plane to the Ottoman army.

Taking into account that Belkıs Şevket, who distributed informative leaflets during this flight, had a flight mission (other than passenger status), and considering that she was "The First Turkish Aviatrix" in addition to her title of "The First Turkish Woman Flying by Plane", and that she was also a Muslim woman in addition to being a Turkish woman, I hereby propose once more that this should be accepted and declared accordingly by the related authorities.

I would like to convey my sincere thanks to Şebnem Akalın and Muhammet Yılmaz for attending this valuable interview with me, where I commemorate these two important and sources of pride for Turkish women, and my thanks to Cem Akalın who recorded this interview and to Ayşe Betül Ercan who deciphered the audio recording.

DGCA Gender Balance Fostering Commission Met in Ankara



The commission meeting took place at the Hezarfen Ahmet Çelebi Meeting Room of the Directorate General of Civil Aviation (DGCA) in Ankara on January 9th, 2020.

One of the decisions taken was that a Gender Balance Symposium, to be held on March 4th, 2020 at the Turkish Civil Aviation Academy in Istanbul, would be the main event for the "Women of Aviation

Worldwide (WOAW) Week" organized with the theme of "Women in the Airports".

The event will also commemorate the opening of the Istanbul Airport and to celebrate the 110th anniversary of the licensing of the world's first female pilot.

Aviation Turkey magazine participated in the meeting as the commission's press sponsor



Another Step Towards Gender Equality in Business

Pegasus Airlines signs up to join IATA's '25by2025' pledge

November 21, 2019; In line with Pegasus Airlines' ongoing efforts to promote gender equality in business and the aviation sector, Pegasus has signed IATA's "25by2025" initiative. In a ceremony held in Berlin, Germany, Pegasus Airlines CEO and IATA Board Member Mehmet T. Nane signed a gender balance pledge for the company as part of a voluntary campaign for IATA member airlines to improve female representation by up to 25% in senior or under-represented roles in the industry by 2025.

Commenting on the initiative, Mehmet T. Nane said: "Gender equality is a very important and ongoing issue for us at Pegasus Airlines and it is demonstrated by the successful initiatives we've implemented thus far. By signing IATA's '25by2025' initiative, we are now pledging to improve gender balance in our workplace. We are proud to be among the first airlines in the world to have taken this pledge. We are also proud to have women excelling in their fields at every level



within Pegasus Airlines, from pilots to senior management. Having made this pledge, and with our continued commitment to gender equality, increasing the number of female employees at Pegasus will now to be one of our primary goals moving forward."

"We welcome Pegasus's commitment to the 25by2025 campaign. We need a skilled, diverse and gender balanced workforce to meet the growing needs of our customers. Aviation is the business of freedom. And 25by2025 will help this important global industry be an even better employment opportunity for all people looking to

make their career by linking the world," said Alexandre de Juniac, IATA's Director General and CEO.

In 2016, Pegasus Airlines became the first airline in the world to endorse the United Nations Women's Empowerment Principles (WEPs), illustrating the significance that the airline places on gender equality and the role of women in business and the workplace. As a member of Turkey's Directorate General of Civil Aviation Committee for the Development of Social Gender Balance, Pegasus Airlines continues to support awareness-raising programs for women regarding job opportunities in aviation,

and to improve the quality and quantity of roles available to women in the sector. Also, as part of the "CEO Manifesto in Support of Gender Equality" prepared by the Professional Women's Network (PWA) Istanbul, Pegasus Airlines CEO Mehmet T. Nane has enlisted his voluntary services as a 'PWN Equality Ambassador' with the mission to increase public awareness around the issue. Pegasus also supports Women in Sales (WiS) which is a platform co-chaired by Pegasus Airlines Chief Commercial Officer Güliz Öztürk to increase the gender balance between women and men in company sales departments.

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INTERVIEW



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“Female Aviators Touch all Business Lines in Aviation”

Women of Aviation Worldwide Week has been celebrating annually since 2010, worldwide and it is between the 2nd and 8th of March this year. Within this scope, we talked with İrem Hiçyorulmaz General Manager of Fly Service Turkey for her insight into the power of women in the aviation sector.

✈️ Aviation Turkey: You represent Fly Service Turkey, a company which provides Representation-Supervision services to aircraft arriving in our country with a C Group permit which it has under the Regulation on Airports Ground Handling Services (SHY-22). You have been working for a long time in a male-dominated industry and the female/male ratio is below the industry average. Now you are the General Manager of one of the industry's leading companies. We are curious to learn more about how you and your company have reached this stage...

İrem Hiçyorulmaz: This year I am celebrating my 20th year in the industry. I started my career in the aviation sector during my university education, and I today still continue to work with the same passion and happiness. I have been working as a female manager in the industry for many years.

Before Fly Service I had a company of my own that provided “Representation – Supervision – Management” services. After the crisis in the tourism sector in 2017, I decided to close my company as I served

European companies. A year later, our paths crossed with Mr. Sarıgöl, and now we are celebrating the 25th anniversary of Fly Service together.

As the manager of the company Fly Service, with more than half of which are women employees, I can honestly say that, although the aviation industry is a male-dominated industry, female aviators have always made a big impact. You can clearly see the effects of a women's touch on all business lines in the sector.

✈️ Aviation Turkey: How did you become interested in aviation? Was it a childhood aspiration and when did you decide to work in this field?

İrem Hiçyorulmaz: Being the daughter of a veteran aviator father is not enough; trust me, you need to love it. Of course, when your first and eternal love is your father, there are many more to come... I got on a plane for the first time when I was 3, and I could say that I could not separate from them since I was 4. I still remember the joy of going to the office with my father at every opportunity and being at the airport... Just to see the planes... In fact, our first

meeting with Mr. Gökhan Sarıgöl was actually in our office when I was coloring my Hapag Lloyd coloring book. I could not believe it when he said, referring to my coloring... “If this is not great, then what is it!”

✈️ Aviation Turkey: Your entry into the aviation sector in the field of “Representation-Supervision” services started with working at your father's company and then continued with managing it. What could you tell us about your father, who is remembered as a respected aviator by those who know him and the Süha Hiçyorulmaz Turizm company?

İrem Hiçyorulmaz: My father is one of the first to start this business. Unfortunately, we had losses among his respectable friends just like him. In fact, aviation during their time is full of notable memories and friendships that should be passed down from generation to generation. I learned a lot from them, I gained a lot, and most importantly, I gained my work ethic from them. I have a surname that I proudly carry, and in this industry, this is an invaluable legacy. Hopefully, I am making him proud, I can

gladly say that I learned the job from the best.

✈️ Aviation Turkey: What can you tell us about the positive and negative factors that you had encountered since you started this business?

İrem Hiçyorulmaz: Our profession is both mentally and physically tiring, with long working hours. But at the end of the day, every successful operation and every challenge we overcome provides us with a great sense of happiness. The comfort and joy we receive at the end of a successful operation help us to rest our tiredness both physically and mentally.

The biggest problem we face in our sector are the foreign and domestic political problems that our country faces periodically and the significant financial losses that come along with it. Actually, we are used to it now, and we know that it will always continue like this. Unfortunately, our losses are high in crises, but our immunity is getting stronger as well.

✈️ Aviation Turkey: Can you inform us about the activities of Fly Service Turkey, what are the features that distinguish it

INTERVIEW

from its competitors?

İrem Hiçyorulmaz: As Fly Service, we have more than 25 years of experience in the industry. Fly Service Turkey currently serves 75 airlines from different geographies and cultures. This diversity creates both new requirements and poses significant challenges in the commercial sense. Our difference from our competitors is that our quality of service is recognized globally, thanks to our established sustainable business partnerships. Considering the number of airline companies that we have been walking on the same path with for so many years, prioritizing our quality of service and customers is what makes us different.

Aviation Turkey: What are Fly Service Turkey's plans for its upcoming 25th anniversary?

İrem Hiçyorulmaz: An incredibly large summer operation awaits us on our 25th year. We have signed great collaboration agreements and we will be happy to see these companies at our airports. We expect a 20% increase in our turnover this season.

We accomplish challenging operations as part of our business, but we will also sign important projects with a highly prestigious university. In our 25th year, we know that we should accomplish projects that will highlight the quality



aspect of the sector. In this regard, Mr. Gökhan Sarıgöl is already a profoundly important name in the sector with the books he wrote and the aviation museum he founded, and also many more fascinating projects are on the way.

Aviation Turkey: As an aviator who has become a general manager in the aviation industry, what can you tell us about your company's activities that improve the gender balance and its future plans, and also your evaluations about Women of Aviation Worldwide Week?

İrem Hiçyorulmaz: Turkey became the leading country in promoting gender equality in world aviation, with its systematic efforts and operations in this field. The Directorate General of Civil Aviation launched

the "Social Gender Balance Improvement" initiative with the contributions of the aviation industry organizations and created a regulation based on this instruction (SHT-TCD). In this context, DGCA began to evaluate this issue throughout the country by forming a commission and commission advisory board. To celebrate the 100th anniversary of the world's first female pilot license issued to Raymonde de Laroche on March 8, 1910, the whole week of March 8 was announced as the Women of Aviation Worldwide Week in 2010. During this week, the Directorate General of Civil Aviation encourages to organize activities that will improve gender balance in aviation by increasing the number and level of women in the aviation industry.

As the main event of 2020, the Directorate General of Civil Aviation will organize a "Social Gender Balance Improvement" symposium at the Turkish Civil Aviation Academy (Istanbul) on March 4, 2020, with the theme of "Women at the Airport." This year, I will also attend as a speaker at the 'Women Deciding/Managing at the Airport' panel. Thus, I invite everyone, especially all my fellow aviators, to this symposium.

I will continue to take part in all kinds of activities, which will increase the social awareness for the education and training of women and their participation in the sector. Because based on gender determination, asymmetry is experienced in almost every field in Turkey today throughout society. However, it should not be forgotten that there is no asymmetry in aviation.

If Women Soar, Life Will Soar!

Aviation Turkey: Is there anything else you would like to add?

İrem Hiçyorulmaz: It was a great privilege to know this family. You have brought a world-class magazine to the aviation sector with such meticulous care, and from the heart I wish for our cooperation to continue...

Aviation Turkey: Thank you for taking the time for our interview and sharing your knowledge and thoughts with us 🍷



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SunExpress Grew by 10% in 2019

Celebrating its 30th year in aviation and tourism this year, SunExpress, a joint venture between Turkish Airlines and Lufthansa, achieved the highest revenue in its history in 2019, setting a new record. SunExpress grew by 10% in 2019, compared to the previous year and generated a revenue of over 1.4 billion euros. SunExpress welcomed over 10 million passengers on board in 2019 and the load factor was 83%. SunExpress CEO Jens Bischof, speaking at the press conference organized in Istanbul on February 18th, stated that SunExpress continued its steady growth with its strong financial structure for three years in a row. "In 2019, we achieved the highest revenue in our history with over 1.4 billion Euros in 2019, a growth of 10 % compared to the previous year. We welcomed over 10 million passengers in 2019. With our strong financial structure and expertise as a leisure carrier, we will continue to be the backbone of air travel for the Turkish tourism industry in 2020." With the vision of creating an air bridge between Turkey and Europe, SunExpress offers a record capacity of 7 million seats between Europe and Turkey in 2020 summer. Bischof said, "We are the airline carrying the highest number of tourists to the Mediterranean



and Aegean regions with scheduled flights. In addition, we directly connect a record number of Anatolian cities to Europe. This summer, we will operate scheduled direct flights to 39 destinations in Europe from 17 cities in Turkey." SunExpress, which connects Antalya with the most international destinations with direct scheduled flights, is now offering the highest number of seats in the company's history to Antalya. As Turkey's tourism capital and SunExpress' home base, Antalya will be served with over 4.5 million seats for both domestic and international market during the summer of 2020. SunExpress, which begins flying from Antalya to Bremen and to Marseille this summer

for the first time, will offer an increase in frequency from many destinations on the Antalya to Europe flight network. The airline will increase weekly flights to Budapest to six, Vienna to five, Brussels to four, Prague and Paris to three, and Lyon to two. During the summer of 2020, SunExpress will connect Antalya to 8 domestic destinations and 43 international destinations. Giving information about their hangar investment in Antalya, Bischof said, "As one of the largest companies and biggest employers in Antalya, we are making a significant investment in our maintenance and repair center, which we expect to be operational by the end of 2021. The project will be a first in Antalya and the center will initially serve SunExpress aircraft

and then will start serving other airlines later." This summer SunExpress continues to strengthen its position in Izmir by offering 1.9 million seats from Europe to Izmir. SunExpress, the airline that connects Izmir to the highest number of destinations with scheduled and direct flights on international routes, is adding five new destinations in this summer season to its flight network: Milan, Ercan (Cyprus), Budapest, Prague and Skopje. SunExpress offers three daily flights from Izmir to Frankfurt, Düsseldorf and Munich, increasing Paris flights to five per week, London flights to three per week and Dublin flights to two per week. SunExpress will connect Izmir to 13 cities on domestic routes and 38 destinations on

international routes this year. Bischof highlighted: "Initially, our Anatolian flights were introduced in 2010 for the purpose of facilitating mutual family visits by Turks living in Europe. Since then, these direct scheduled Anatolian flights have continued and become SunExpress' fastest-growing market. We now offer almost 1

million seats from 13 Anatolian cities to 17 European cities with direct scheduled flights. This summer SunExpress will start flying from Adana to Hamburg, Vienna and Brussels, from Balıkesir (Edremit) and Eskişehir to Düsseldorf, from Malatya to Frankfurt, and from Konya to Helsinki. 2020 is set to be a year of records

for Turkish tourism. Bischof stated: "We have proven once again that we are a very important part of Turkish tourism with our flights between Turkey and Europe. We predicted that 2019 would be a record year for Turkish tourism, and so it was. SunExpress is the world's fifth best leisure airline and Turkey's best leisure airline, and this

record capacity increase by the airline for 2020 is a reflection of a new record forecast in Turkish tourism. "At the end of the meeting, Jens Bischof, the outgoing CEO of SunExpress, said that he will take over as CEO of Eurowings on March 1 and introduced Dr. Max Kownatzki as the new CEO of SunExpress from April 15.

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The Crisis that Turned Boeing Upside Down: 737 MAX

by Muhammed Yilmaz

The crisis of the 737 MAX is getting deep for the U.S. manufacturer Boeing. According to the financial data of 2019, Boeing declared a loss on a yearly basis for the first time after a 23-year period and announced that it concluded the year with a loss of US\$ 636 million. With the burst of the 737 MAX crisis, the gross orders received by the company fell by 77% down to 246, then it closed the year with merely 54 net orders due to the cancellations and changes in the orders.

Declaring 2020 as the year for resurrection and recovery, Boeing closed the month January without receiving any new orders. The aviation archives reveal that the giant airplane manufacturer was experiencing this type of crisis for the first time since 1962. To sum up, things are not on track for Boeing!

After the two fatal crashes within 5 months that left 346 people dead, the flights of 737 MAX airplanes were suspended across the world on March 12, 2019 and none of these airplanes have taken flight since. The production of the 737 MAX

airplanes that caused the biggest bottleneck to Boeing throughout the company's history of 100 years has been halted as of 2020. It is claimed that a new problem was arising almost every day during the ongoing tests and software update processes. The relaunch date of the airplanes' flight operations is still not clear. Despite the increasing compensation bills and the problems that they strive to solve, the new CEO of the company David Calhoun hopes that they will be relaunching the airplanes within the first half of the year. However, to the aviation industry this wish is far too optimistic. Following are the prominent headlines and the chronology of the incidents throughout the 737 MAX crisis.

The crisis upon the accidents

Aiming to reduce its production costs and wishing to increase its competition with its European rival Airbus A320 in the single-aisle jetliner, Boeing developed the 737 MAX that is the fourth generation of 737 series which conducted its maiden flight in 1967 and reinforced it with new



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generation systems and more efficient engines. The first member of the family MAX-8 took to the skies for the first time on January 29, 2016. MAX received the title of world's fastest selling airplane model with over 5,000 orders placed in a short while and it was launched to service within Malindo Air's fleet for the first time on May 22, 2017.

Boeing encountered several problems during the design stage of the 737 MAX and had to overcome these bottlenecks. The new generation LEAP 1 engines developed for the new airplane for a targeted fuel saving of 14 percent was bigger than the engines utilized by the previous models. Therefore, the landing gear of the airplane was slightly pushed forward and moved away from the hull. However, such actions caused changes in the airplane's center of gravity and

this eventually affected the performance of the airplane. In particular, the angle of attack of the airplane increased more than required during climbing.

As a result of this development, the MCAS (Maneuvering Characteristics Augmentation System) was implemented on Boeing airplanes for the first time in their history in order to avoid a stall. On account of this new system, depending on the angle of attack during the elevation, the airplane automatically adjusted the trim as its nose went up and pressed its nose downwards.

On October 29, 2018, the 737 MAX of Lion Air crashed 11 minutes after its take off in Jakarta, and on March 11, 2019, Ethiopian Airlines' 737 MAX-8 plunged into farmland 6 minutes after its take off in Addis Ababa. The evolution of both



accidents is quite similar, and all the signs indicated a potential problem in the MCAS system.

Flights were suspended

Following the second accident, within nearly 4 days, the flights of all Boeing 737 MAX airplanes (371 airplanes) were temporarily grounding until they proved their safety. Nearly 20% loss of value occurred in Boeing's shares and the U.S. manufacturer experienced its biggest turbulence during its 102-year long history!

While the investigations on the accidents continued, it was revealed that pilots operating the Boeing 737 MAX airplanes had also severe concerns. The statement made by Boeing Company in May showed that they knew the plane was having problems long before the Lion Air accident and that no measures regarding the problem were adopted.

Experts criticized Boeing's original software design based on the data transmitted from the sensor of a single angle of attack and claimed that the reaction of the MCAS system in case of a breakdown of one of the sensors of angle of attack had not been tested and that the airplane was defenseless against inconsistency of the data received. Pilots of many airline companies claimed that no information on the deactivation of the MCAS system was included in the documents of the airplane as well as in the training process.

After the investigation, Boeing CEO Dennis

Muilenburg accepted that the MCAS pressing the nose of the airplane downwards played key roles in both accidents and apologized for the loss of lives.

Risk of short circuit in 737 MAX airplanes

The 737 MAX airplanes are being controlled down to the last detail both by Boeing Company and the regulators and it is speculated that new problems beyond the software-oriented issues were being emerged in 737 MAX airplanes. According to the latest claims, problems were experienced in the wiring system and engines of the airplane bearing a potential of a short circuit in-flight.

The wiring system enabled the control of 737 MAX airplanes' tails and the emergence of potential risks that were not tackled before are claimed to be included in the issues that need urgent attention. Boeing is examining if the two bundles of wiring were too close to

each other that caused a short circuit problem. Determining whether or not the wiring bundles of approximately 800 airplanes manufactured so far needed to be taken apart will also reveal the road map for the solution. Boeing claims that even if such correction is required, 1 to 2 hours would be sufficient for such a process for every airplane. Since the company is afraid of causing additional damage to the wires during such a repair process, it is not willing to make changes on the wiring system of the airplane.

Engines also examined in detail

Engines of the 737 MAX airplanes are being examined in detail by the regulators as well. FAA officials detected a structural weakness in one of the engines powering the 737 MAX airplanes. The engines were developed by CFM (a partnership of General Electric and Safran) and the identified weakness may have led to the failure. This potential issue bears low probability in the breakdown for the time being and regulators recommend that even though no steps were taken towards an urgent correction, the airlines should be checking as many MAX engines as possible prior to the relaunch of airplanes.



STATUS

Furthermore, previously, a manufacturing defect that left the airplane engines defenseless against lightning strikes was discovered.

Although merely for testing purposes, the MAX airplanes' back in the air implies a very critical milestone in terms of the future of the airplane. The FAA insists that all the pilots should have compulsory simulator training when the 737 MAX airplanes are back in the air.

Production of the aircraft halted

Upon the suspension of the flights of the 737 MAX, Boeing slowed down the production rate of the airplanes from 52 to 42 monthly. As the problems continued and the relaunch of the 737 MAX was further delayed, the production of the 737 airplanes that had never been interrupted for 53 years had to be halted temporarily in the beginning of 2020.

Approximately 400 new Boeing 737 MAX airplanes were manufactured within nine months, but none have been delivered to the clients yet. The manufactured airplanes started to be stored at the facilities of the manufacturer. In its statement, Boeing announced that the decision for the suspension of the production was based on a series of factors



such as the extending of the certification process to 2020, the timing and conditions of the relaunch of the airplanes, ambiguity of the global training approvals, the priority attached to the delivery of the stored airplanes.

Delivery of nearly 400 manufactured airplanes stored at Boeing facilities is estimated to take at least a year. It is known that severe problems were

experienced due to the current condition in which the company can barely find parking spaces for new airplanes. The continuation of the manufacturing process of the aircraft also implied serious problems for the company in terms of finance and logistics.

While monthly production of 42 airplanes indicates a stock of US\$ 1.5 billion per month for the company, the quarterly cost is

believed to reach US\$ 4.4 billion. Besides, nearly 3 thousand employees were assigned to other teams performing in other production programs due to the suspension of production. The companies that were manufacturing components for the 737 MAX were mostly affected by the suspension of production and many companies experienced financial bottlenecks.



Boeing's 737 MAX Production Line

How will the Airlines persuade the passengers to fly with the 737 MAX?

While the efforts to relaunch the 737 MAX keep on, the airline companies with these airplanes in their fleet are developing various communication strategies by thinking of ways to wipe out the passengers' negative perception of the MAX.

Oscar Munoz, the CEO of United Airlines, one of the 3 major airlines of the United States made a statement on this controversial issue. Underlining that they will be completely transparent to their customers, Munoz stated that they would not allow anyone fly with an airplane that they do not trust! Passengers who claim that they do not feel comfortable or safe during the boarding process and even the passengers at the gate with the same claim will be entitled to a new reservation without paying any extra charges. Munoz drew all attention with his statement "This is a crucial call for us. We do not think that all passengers will be cheerfully boarding the flight with that airplane". Also as part of the "it is the proof that counts not the word" approach in their management understanding, Munoz stated that he will be taking part in the first United 737 MAX flight.

Like many other airline executives, Emirates Airlines President Tim Clark recommended that Boeing should change the name 'MAX'.

Senators accuse Boeing of building 'Flying Coffins'

Giving his testimony at the U.S. Senate on October 29, 2019, regarding the 737 MAX accidents taking place in Indonesia and Ethiopia, Boeing CEO Dennis Muilenburg shared that they learned from both accidents and identified changes that need to be made, adding that he did not intend to resign.

The Senators accused Boeing of putting profits over safety. The Senator of Connecticut Richard Blumenthal accused Boeing of deliberately concealing the defects though being aware of them and blamed the company of manufacturing a "flying coffin". The Senator of Mississippi Republican Roger Wicker said, "Both accidents could have been prevented."

CEO Steps Down due to 737 MAX Crisis!

In a statement made by the Executive Board of Boeing on December 24, shortly after the testimony, it was announced that a decision was taken to make changes in the executive management in order to build the trust to company while they strived to correct relations with regulators, authorities, customers and all other stakeholders. Having assumed various positions at Boeing since 1985 and having become the CEO of the company in July 2015, 55-year-old Muilenburg stepped down. The shares of Boeing experiencing a decline of 21% following the 737 MAX accidents and then rose by 3% upon the resignation announcement.

Having remained on the Executive Board of Boeing since 2009, David Calhoun was assigned as the company's new CEO as of January 13, 2020. Calhoun initially focused on the financial situation of the company and secured

financing commitments of over US\$ 12 billion from various banks. Calhoun declared that the name of the airplane would remain as 737 MAX adding that they did not plan any changes.

MAX 10 quietly rolled-out from the factory!

Boeing quietly rolled out the newest and biggest model of 737 MAX family, the 737 MAX 10 from the factory on November 22, 2019. Despite the statement that the airplane would be going through system controls and engine running stages prior to the maiden flight planned to take place in July 2020, no exact date regarding the flight has been given. It is presumed that the date would depend on the recertification of the MAX 8 and 9 airplanes.

737 MAX 10 was manufactured to compete with its European rival Airbus A321neo. With the A321neo model, Airbus achieved a major market power by increasing its



The roll-out ceremony of Boeing 737 MAX-10

STATUS

single-aisle passenger capacity to 239 and its range to 5 thousand 700 kilometers. The U.S. manufacturer strived to dominate this market with the Boeing 757 airplanes for long years, then developed the 737 MAX 10 model.

The range aimed for the single-aisle category is 6 thousand 110 kilometers and the seat capacity is maximum 230. It is claimed that MAX 10 airplanes would be offering the lowest level in the cost of kilometer per seat among all narrow-body aircraft.

Announced at the Paris Airshow for the first time in 2017, the MAX 10 has achieved an order of around 550 from over 20 airlines so far. With the order placed for 100 MAX 10s, United Airlines will be the first client of the airplane.

737 MAX crisis leading airlines to bankruptcy!

Another critical issue is how the losses occurred because of the suspended flights of 737 MAX airplanes would be compensated to the airlines. It was announced that the worldwide grounding of the airplanes costed over US\$ 9 billion to Boeing as of the end of 2019.

Southwest, Air Canada, American Airlines, China Southern, Norwegian, Air

China, TUI Group, United Airlines, Flydubai, SpiceJet and WestJet are presently the greatest operators of the airplane. 24 airplanes out of nearly 1000 aircrafts of the American Airlines fleet are 737 MAX. 85 flights out of the 6700 daily flights conducted by the airline used to be made with 737 MAX. Another U.S. airline, United Airlines owns 14 737 MAX 9 in its fleet. Containing the highest number of 737 MAX in its fleet with 34 airplanes, Southwest's operations with MAX airplanes correspond to 4% of the daily flight operations of the airline.

All operators have adopted certain measures to minimize the losses caused by the crisis. Some companies changed the flight program and cancelling certain flights or signed short term airplane leasing contracts. Air Italy called for suspending the operations in the beginning of February. It was claimed

that the company would go for bankruptcy and that grounding of the 737 MAX airplanes played a key role in this development. In other words, the crisis caused by 737 MAX deepens in such a way that would lead the airline companies to bankruptcy.

THY reaches an agreement with Boeing on compensation

Turkish Airlines and Boeing came to an agreement on the compensation required to cover the damages occurred due to the worldwide grounding of the 737 MAX airplanes. Turkish Airlines has 12 737 MAX airplanes that were grounded since March 2019. 11 of these airplanes are 737 MAX and the remaining airplane is a 737 MAX 9. The airline placed an order of 65 737 MAX 8s and 10 737 MAX 9s to Boeing.

While it was claimed that Turkish Airlines was

intending to sue Boeing for the compensation of the damages, according to the official statement made by Turkish Airlines it was announced that the losses and damages occurred due to both grounded airplanes and the manufactured but not delivered 737 MAX would be compensated by Boeing in line with an agreement reached by the parties.

The content of the agreement reached was not declared. However, Boeing accepted vast amount of a compensation for grounding as well as spare parts and training services.

In line with the schedule that has been recently declared by Turkish Airlines, the airline aims to receive a total of 48 737 MAX airplanes including the MAX 9 model until the end of 2020. However, these figures may vary due to the relaunch of the airplane and the delivery schedule of Boeing [☞](#)



Boeing 737 MAXs has been temporarily grounded since 14 March, 2019



Assist. Prof. Dr. Tamer Saraçyakupoğlu
Mechanical Engineer

High-Tech Material Utilization Trend in the Aviation Industry

The aviation industry is still growing even in the midst of the relative global recession due to the impact of an increased demand to fly. According to the International Air Transport Association (IATA) it is has been stated that 8.2 Billion people are expected to fly in 2037 (ICAO, 2016) whereas almost 4.5 Billion travelled by plane in 2019 (Statista, 2019). It means the number of passengers boarding will almost double through the next two decades. While we are talking about passenger demand it should be emphasized that the main driver of the expanding aviation industry is due to an increase in air freight.

While the aviation industry expands what are the impacts of the aviation industry on the environment? It is clear that aircraft create an desirable impact on the environment. Consumers can change their habits and technical teams can design cleaner and more efficient technologies. All these factors are being realized at present. Since the 1970's, the early days of environmentalism, many aspects have gotten

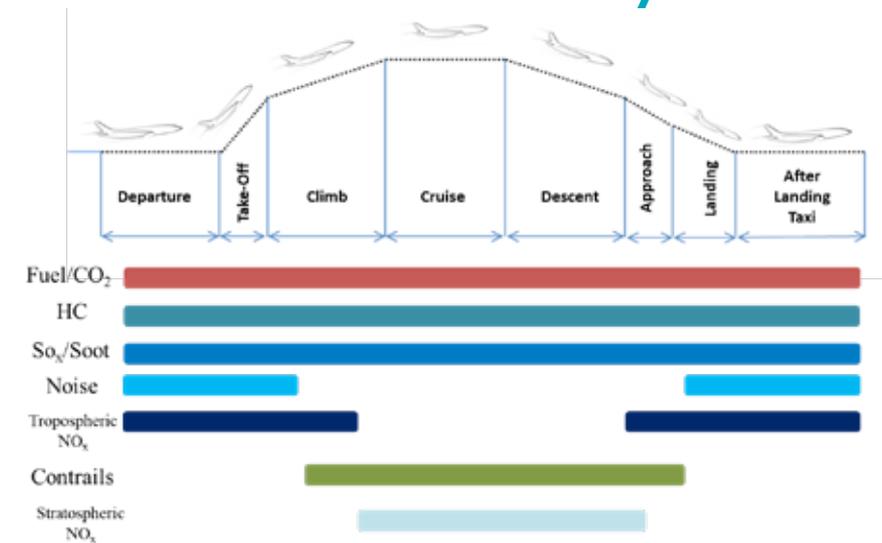


Figure 1. Environmental impacts associated with aircraft operation. Adapted from (Kavindu Ranasinghe, 2019)

better in the name of the aviation industry, but unfortunately a lot of environmental impacts have also become worse as well.

The main pollutants emitted by aircraft engines in operations are Carbon Dioxide (CO₂), Nitrogen Oxides (NO_x), Sulphur Oxides (SO_x), Unburnt Hydrocarbons (HC), Carbon Monoxide (CO), Particulate Matter (PM) and soot.

In accordance with the 2019 European Aviation Environmental Report, two main impact drivers were recorded to be 163 million tons in 2017 and

it is estimated that it will reach 224 million tons in 2040 while hydrocarbons (HC) were recorded to be 57 thousand tons in 2017 and it is estimated that it will reach 58 thousand tons in 2040.

The aviation industry is mainly responsible for approximately 2-3% of worldwide Carbon Dioxide (CO₂) emissions and based on the most current growth forecasts, this figure is expected to double by 2050 (Penner E, 2000). Meanwhile, the maritime impact is worse than aviation industry.

The environmental impacts of an aircraft operation are categorized

in seven groups as depicted in **Figure 1**

With a closer at a one-hour-flight with narrow-body aircraft with the full crew and 150 passengers on board, it can be observed that the amount of emissions are huge comparatively to air breathed. The Federal Office of Civil Aviation (FOCA) depicted the figure of a one-hour-flight with the perspective of inhaled air and exhaled emissions which are demonstrated in **Figure 2**.

There are numerous studies and research work focused on reducing aviation emissions. There's a chicken-egg relation

TECHNOLOGY INSIGHT

between the studies and the robustness of aviation companies. The more powerful aviation companies are, the more powerful their research studies become.

More fuel-efficient and less polluting turboprop and turbofan engines have been designed, developed and manufactured with the rise of novel technologies such as additive manufacturing techniques. Hybrid and electrically powered aircraft are being developed and prototypes are showing up in the theater. But it must be kept in mind that, none of this research would be possible if the aviation industry was in a permanent recession. Quite obviously it requires investments to carry out emission reducing research. The funds for research and development are channeled from the profits of robust companies. As mentioned prior, direct emission from aviation is about 2-3% of overall global emissions. But, with this point it should be emphasized that maritime transportation has a more severe environmental impact than the aviation industry in accordance with the data provided by the International Maritime Organization (IMO) (IMO, 2019). According to the IMO's website information, shipping activities account for approximately

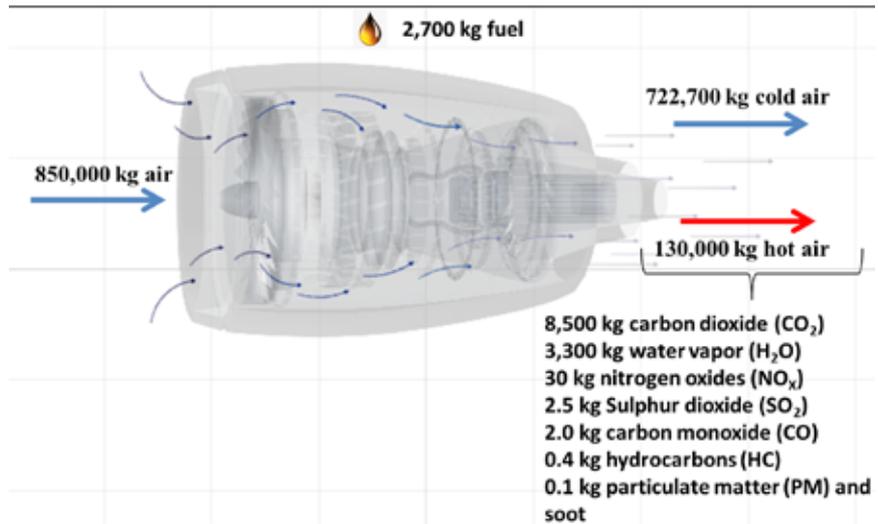


Figure 2. Emissions from a typical two-engine jet aircraft during a 1-hour flight with 150 passengers

3.1% of annual global emissions which is greater than that of the aviation industry.

In the aviation industry, the use of novel technologies is not directly related with environmental issues, more so it is a natural result of engaging in fierce competition. For example, a Boeing 747-400 which

has a Maximum-Take-Off-Weight (MTOW) of 396,890 kg, reducing 1 kg in the MTOW results in 0.94 kg less CO₂ emissions and for an Airbus A330-300 which has an MTOW of 242,000 kg, a reduction by 1 kg in the MTOW results in a reduction in CO₂ emissions by 0.475 kg. Also, a reduction of 1 kg in carbon emissions can also save up to 0.3 kg in

aviation fuel (Tsai, 2014)

The usage of composite materials such as Carbon Fiber Reinforced Polymers (CFRP) has great benefits on reducing CO₂ emissions. Composite materials feature a variety of benefits which include a high strength to weight ratio, an improved resistance to corrosion, advanced fatigue

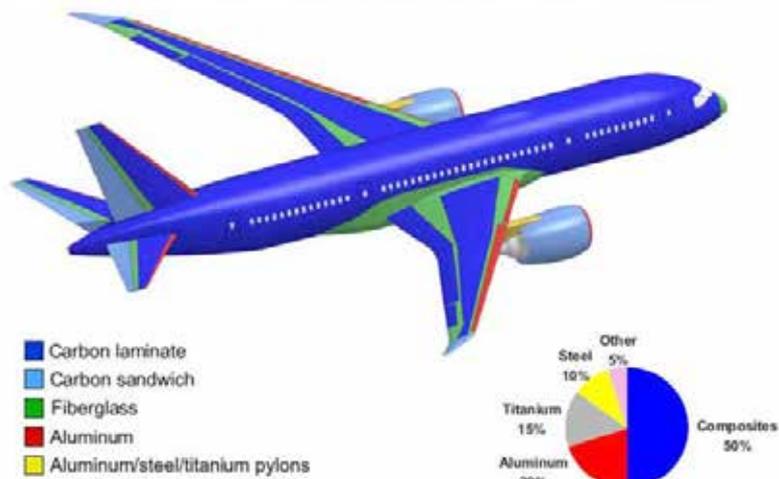


Figure 3. The Spectrum of the Materials Which Are Used in the Boeing 787 Dreamliner.

resistance and the low cost of maintenance (Justin Hale, 2006). The density of steel is about 7.7–8.0 gr/cm³ and aluminum’s density is 2.7 gr/cm³ whereas typical CFRP material density is about 1.6 g/cm³ (Gorbatikh, L. Wardle, & V. Lomov, 2016). Even with just this comparison the popularity of CFRP usage can be understood.

Previously, steel was converted to aluminum alloys and now composite materials are taking the place of aluminum materials. In **Figure 3** the composite usage in the Boeing 787 Dreamliner is shown.

It can be easily observed that composite material usage is over 50%. The other major aircraft manufacturer company Airbus plays a significant role in the industry and has a similar strategy regarding the use of aircraft materials. In **Figure 4** the percentage of composite material used in the Airbus A350 XWB aircraft is depicted.

After layering up the carbon and resin layers, and autoclave operations the most important stage of the whole manufacturing phase is to cut the materials with given End-of-Part (EOP) borderline (Hashish M. 2013). The Abrasive Water Jet (AWJ) is another novel technology used in



Figure 4. The Spectrum of the Materials Which Are Used in the Airbus A350 XWB.

the aviation industry for cutting the part with given EOP. In **Figure 5** an AWJ machine in use is shown. This complicated cutting process gives advantages of cutting materials with high surface quality. With the benefit of advantages and capability of high quality surface AWJs have found a wide usage area in the aviation industry. Machining large parts like wings, tails and the skin of aircraft is an enlarging trend requisition in the aviation industry. The cutting of large composite materials as well as metallic ones makes the

use of AWJs a popular technique. For example, Boeing makes a 5-axis AWJ machine a standard machine because during cutting operation, the AWJ prevents delamination, splitting and edge scratches (Shengxiong X, 2017).

All technologies have their own pros and cons, as do CFRPs. Many engineering solution challenges are faced especially during the disposal and retirement phase in the name of life cycle management.

Sooner or later, more novel technologies will

be implemented in the aviation industry as it was in the past and it is at present. With the increase in new technologies weight reduction studies will also increase by two major forces. The first force is directly a result of fierce competition in the aviation industry and the second one is the pressure of addressing environmental impacts. For sure, in the near and far future, CFRP and CFRP-like materials will be seen more widely in facilities of aircraft manufacturer companies ➔



Figure 5. AWJ Process



Hydrogen Fuel Cells that Assure Longer and More Efficient Drone Operations Could Point Way for Future Air Travel!

by İbrahim Sünnetçi

Operators of drones are increasingly demanding drones with enhanced range and flight endurance capabilities, in order to fly further and for longer durations. However, nowadays small commercially available drones are usually able to achieve a flight time of 25 minutes or less, depending on the number of rotors and/or load, with their battery power pack. It is a fact that conventional LiPo batteries with a short life and long charging time requirements have been limiting the flight duration of drones and hence have somehow slowed down the development of the Drone Industry. It

is worth noting that every industry currently using drones could benefit from having a drone that can stay in flight longer. The drones are currently widely used in a variety of industries including the military, security (providing persistent intelligence and situational awareness for protection of airports, borders, ports and valuable assets), the oil and gas industry, building inspections, agriculture, rescue missions, and emergency service. In order to overcome the problem of short flight duration (when it runs on batteries) a number of manufacturers in the U.S., Europe, Russia and

China have started to use fuel cells in their drone systems.

The main advantage of fuel cells over lithium batteries (such as Lithium Ion and Lithium Polymer [LiPo]) is the fact that they can keep a drone in the air a lot longer than lithium batteries. Fuel cells are three times more energy-dense than a conventional drone battery. Internal combustion engines provide much higher energy densities than batteries, but suffer from a much higher initial cost, as well as requiring extensive regular maintenance and overhaul. They are also

noisy. Fuel cells are more efficient than internal combustion engines, and unlike batteries, do not need recharging and will continue to operate as long as they are provided with fuel. Improvements to lithium batteries, which are possible with new materials, will make this type of batteries more efficient, however, if we consider the achieved increase in the energy density of today's LiPo to the equivalent product during last decade we would see just a steady improvement of about 7% a year, which is definitely not a revolution, but a slow evolution. Moreover, the Lithium-ion (Li-Ion) batteries are highly

How do hydrogen fuel cells work?

According to open sources hydrogen generates three times as much power per kilogram compared to fossil fuels - approximately 39.0 Kilowatt hours (kWh) per kilogram compared with roughly 13 kWh per kg for kerosene or petrol or just 0.2 kWh for conventional lithium ion batteries.

To turn hydrogen (H₂) into fuel, it must be separated from other elements, pressurized, and stored in a stable environment (either in the pressure cylinder, in an aluminum hydrogen reactor or in a solid, lightweight hydrogen storage material, which is capable of releasing large quantities of hydrogen when gently heated, without proper storage it could explode). To make this concrete, a hydrogen fuel cell

converts hydrogen fuel into electricity by combining hydrogen (H₂) with oxygen (O) within the fuel cell. The only exhaust emission of this reaction is water vapor (H₂O).

Though hydrogen gas is widely available from industrial gas suppliers and hydrogen fuel cells are three times more energy-dense (which means the same weight can generate more power) than a conventional LiPo drone battery, using hydrogen for fuel also has some drawbacks. Such as; since hydrogen gas wants to move around this makes it so explosive and hydrogen fuel cells generate a high amount of heat, which is high enough to melt the plastic components used in commercial drones. The cost of producing hydrogen gas still stands as a major obstacle to affordable hydrogen technologies. Several technology companies around the globe (such as Intelligent Energy,

flammable, so a crash landing could trigger an explosion and contrary to internal combustion engines fuel cells do not have moving parts, which dramatically decrease noise and maintenance costs as well as unit replacement. So, fuel cells still stand as an attractive alternative to LiPo or other power options, like internal combustion engines for drones and UAVs. However, drones fitted with a hydrogen fuel cell still have an auxiliary lithium battery which starts the fuel cell and provides a backup source of power for the drone.

Every fuel cell requires two components; the main body of the power-generating unit and the fuel tank to be filled by hydrogen or any other gas or liquid.

As the most abundant chemical substance on Earth, hydrogen has been used for fuel in fuel cells onboard drones since mid 2010s. Thanks to their greater energy density than LiPo batteries hydrogen fuel cells are a better fit for long-endurance flights than batteries. Hydrogen drones have a higher endurance which is much longer than drones powered by LiPo batteries.



Doosan DMI DS30 drone

DRONE TECHNOLOGIES

Ballard Power Systems, Cella Energy, Arcola Energy, BMPower, Doosan Mobility Innovations, Scottish Association for Marine Science (SAMS), Horizon Energy Systems (HES), and H2Go Power) have been working to develop affordable and cost-effective hydrogen technologies for drones and UAV applications since the last decade.

Despite these drawbacks, there are also some big benefits to use hydrogen fuel cells to power a drone:

- Extended mission time and distance (usually about 3x that of LiPo batteries for the same weight)
- Hydrogen is directly proportionate to the requirements of flight time. In other words, more fuel, more weight, hence more time in the air
- Compared to batteries and internal combustion engines hydrogen fuel cells provide quiet, reliable and low-maintenance operation
- More efficient operation at higher altitudes than internal combustion engines and LiPo batteries
- Lithium batteries efficiency decreases colder environments. The flight endurance reduced in an estimate from 20% to 40% of the standard time after the temperature reaches zero degrees or lower



MMC Hydrone 1550 drone

respectively. Fuel cell, however, is not affected by low temperatures. It even functions seamlessly at -20°C

- Cleaner fuel source than LiPo and other alternatives
- Time to re-charge is dramatically reduced—usually takes about five minutes (Once the hydrogen gas on board the drone is exhausted, the pressure cylinder can be re-filled in as little as two minutes, or replaced with another, full cylinder)
- Opens up BVLOS (beyond-visual-line-of-sight) possibilities for unmanned aircraft

Hydrogen powered drones on the market

Hydrogen Powered Drones (HDPs) are drones that use hydrogen as a power source. Representing a major breakthrough in the drone market and creating a new era for drones and UAVs the hydrogen fuel cell is a new technology that many drone companies are adopting. The world's first hydrogen-fueled aircraft (Raptor E1 drone) took to the skies in January 2015

and the first commercial and ready-for-market HPD in the world (HyDrone 1550, designed and manufactured by Chinese-based MicroMultiCopter [MMC] Aero Technology) was released in 2016. Since then, more hydrogen-fueled drones and hydrogen fuel cells made for drones have been released, with newer models achieving greater and greater enhancements.

On January 19, 2015, the Scottish Association for Marine Science (SAMS) completed its first test flight with the Raptor E1 drone (of Raptor UAS



MMC Griffion H drone

company) by using Cella Energy's hydrogen-based power system (gas generator). The test flight lasted for 10 minutes and the Raptor E1 drone flew at an altitude of 80 meters – although it could have gone for two hours with the fuel it had on board. Designed and built by Cella Energy, the hydrogen gas generator uses solid, lightweight hydrogen storage material, which is capable of releasing large quantities of hydrogen when heated and when combined with a fuel cell (supplied and integrated by Arcola Energy) creates electrical power. According to SAMS the complete system, comprising Cella Energy's gas generator and lightweight hydrogen storage material along with Arcola Energy's fuel cell, is considerably lighter than the lithium ion battery it replaced. The system uses around 100 solid pellets packed into a cartridge. The 1-centimeter-square pellets are made from a chemical compound that produces a steady stream of hydrogen as they are gently heated. This gas is then converted into electricity in a fuel cell that runs the drone's rotor. Since the lightweight hydrogen storage material (solid pellets packed into a cartridge) is a solid and is not under compression this technology addresses several security issues related

with the transportation of compressed hydrogen gas onboard a drone in the pressure cylinder.

Designed and manufactured by Chinese-based MicroMultiCopter (MMC) Aero Technology the HyDrone 1550 is known to be the first hydrogen-powered drone, a hexacopter, in the world. The HyDrone 1550 with a hydrogen fuel cell has been tested at altitudes of over 14,000 feet. In 2017, the HyDrone 1550 was used to rescue 3 people during a mission on Changbai Mountain near China's northeastern border, an area where the extreme altitude and the low average temperature of over -10°C , which would have impossible with a LiPo-powered drone. With the total weight of 16.5kg and standard take-off weight of 18.5kg the HyDrone 1550 has dimensions of 1550 (L) x 1342 (W) x 610 (H) mm. Here are some specs and details for the HyDrone 1550:

- 150 minutes endurance (without payload) with hydrogen fuel cell
- 10 km flight radius with 2 km (2.4GHz) / 10 km (900MHz) communication & control frequency range
- >90 km flight distance
- 9 liters hydrogen storage volume
- Maximum service ceiling of 4.500m above sea level



RAPTOR E1 prepared for the test flight

- Lightweight carbon fiber body
- Rain- and dust-proof
- Compatible with several camera types
- Comes with route planning for autonomous flight and GCS-controlled flight

In May 2015, Singaporean company Horizon Unmanned Systems (HUS) unveiled the HYCOPTER multirotor drone, that runs on a lightweight hydrogen fuel cell able to deliver up to 4 hours of flight time unloaded, and 2.5 hours when it's carrying 2.2 pounds of cargo. HYCOPTER's special fuel cell was designed by sister company Horizon Energy Systems (HES). The HYCOPTER HPD is currently in service with the Dubai Police Force and was showcased by Dubai Police Force Officers at the Intersec 2019 security trade show held in January 2019 in Dubai. According to Dubai Police the hydrogen-powered drone is the first of its kind and can fly for more than 3

hours continuously.

On April 10, 2016 MicroMultiCopters Aero Technology (MMC) hosted a launch event to debut their new 2nd generation HPD HyDrone 1800. In February 2017 at the IDEX 2017 Exhibition together with CATIC, MMC unveiled the military version of the HyDrone 1800. As an upgrade for the HyDrone 1550, the HyDrone 1800 is designed for use in the toughest conditions, the drone is wind-resistant, rain-resistant, and cold-resistant. The HyDrone 1800 achieves the extended flight time while maintaining altitude limits of 4,500 meters and has a payload capacity of up to 5kg. The HyDrone 1800 can be used for intelligence gathering, border patrol, aerial fire support, laser designation, or battle management services to tactical military operators. MMC also offers packaged solutions in target acquisition and reconnaissance technology (ISTAR). The HyDrone 1800 can be

DRONE TECHNOLOGIES

refueled in less than 40 minutes and has a double back up flight control system. It has a flight duration of 2 hours to 273 minutes (4.5 hours) and the ability to fly for about 100km when combined with MMC tethered technology. MMC's hydrogen fuel cell called the "H-1 Fuel Cell" beaks the limitations of the lithium battery as its flight endurance spans up to 4 hours. It is designed for a wide range of commercial drones (both for fixed-wing and multi-rotors UAV, such as DJI M600, MMC HyDrone 1550 and MMC A6 Plus, etc. The H1-Fuel Cell has a lifespan of up to 1,000 hours.

On April 16, 2019 MetaVista, a South Korean-based liquid hydrogen specialist, achieved a new Guinness World Record for the longest multi-rotor flight time with a multirotor drone fitted with a 6-litter liquid hydrogen cylinder and an 800W hydrogen-based Fuel Cell Module made by Intelligent Energy. That drone flew 12 hours, 7 minutes and 5 seconds. MetaVista had previously (in January 2019) completed a 10-hour and 50-minute multi-copter test flight using an Intelligent Energy's 650W Fuel Cell Power Module (FCPM). During that flight MetaVista



used 390 grams of liquid hydrogen in a specially designed 6L cylinder.

On September 17, 2019 MMC launched its new hydrone Griffion H, with a record-breaking 15-hour flight time (10 hours with a 3 kg payload) in Germany during the InterGEO 2019. The Griffion H is a hydrogen-powered vertical take-off and landing drone with an integrated design and MMC-developed hydrogen fuel

battery with a maximum hydrogen storage capacity of 27 liters.

In November 2019 a hydrogen fuel cell-powered DS30 octocopter drone of Doosan Mobility Innovation managed a one-hour, 43-minute ocean crossing. During the flight, which was the result of a collaboration between Texas-based drone development company Guinn Partners, Georgia-based Skyfire Consulting, the US

Department of Health, and drone manufacturer Doosan Mobility Innovation (DMI) the DS30 drone crossed 43 miles (69 km) of open ocean. Upon successfully reaching its destination, the copter reportedly still had almost 30 minutes of flight time left on its fuel cell. The DS30 can carry a maximum payload of 5 kg (11lbs)

TÜBİTAK MAM Energy Institute and Hydrogen Fuel Cell Modules

The Energy Institute has been working on Energy Storage and Fuel Cells for many years in our country and exhibited the UAV Fuel Cell System and Hydrogen-Fueled Multicopter working with boron and hydrogen sodium interaction at TEKNOFEST Istanbul 2019.

According to TÜBİTAK MAM officials, who we



had the opportunity to meet with at the booth, the UAV with 30 minutes endurance and a conventional battery is able to fly for about 1 hour with the use of a Bor-H2 based Fuel Cell. Twice the battery weight is required for similar endurance, so when the Fuel Cell is used, it is sufficient only to increase the amount of fuel carried (with a larger fuel tank, the endurance can be up to 2 hours), with the addition of a lower weight (it was expressed that proportional increase of 50% or less would arise compared to a conventional battery) for longer endurance.



TÜBİTAK MAM Hydrogen Fuel Cell Drone

the booth, there was a type-4 class hydrogen fuel tank of 1.3 kg (2 liters) and resistant to 300 bar pressure, and at the lower

LiPo battery (COTS/ RaHAT material). The Fuel Cell is charged during the flight with hydrogen fuel, and the charging of the upper battery is achieved with the electrical energy produced by the Fuel Cell. When the hydrogen in the tank runs out, a safe landing is provided with a charged LiPo battery.

Here are some specs and details for the Geomatics Group Quadcopter with the TÜBİTAK MAM Fuel Cell Module:

- 150 minutes of endurance with a hydrogen fuel cell
- 5 km flight radius with 10 km data transfer range capacity at 2.4 GHz and 5.8 GHz frequencies
- Maximum service ceiling of 2,500 m above sea level
- 300 m – 500 m average mission flight altitude
- 2 liters of hydrogen storage volume
- Rain and dust proof

TUBİTAK MAM UAV Fuel Cell System Tehnical Specs

Output Power:	200W
Fuel Type:	Compressed Hydrogen or NaBH ₄ (Sodium Borhydride)
Hydrogen Capacity:	1050L
Total Weight:	2.2 kg
Energy Density:	325 Wh/kg
Payload Capacity:	4 kg

According to the information we have obtained, flight tests were performed in 2019 on a fixed wing unmanned aerial vehicle with a wingspan of 3m with the UAV Fuel Cell System, operating with the interaction of boron and hydrogen sodium with 200W output power. On the upper part of the Geomatics Group's Hydrogen-Fueled Multicopter exhibited at

end, there was a TUBİTAK Fuel Cell and a 2,650mAh



TÜBİTAK MAM Energy Institute's UAV Fuel Cell



by Sitki Atasoy
Spotter & Author of
Aviation Turkey

Our Companions and Equipment in Aviation Photography



In our previous article, we gave you an introduction to Aviation Photography. We discussed the definition of Aviation and Aviation Photography and mentioned what it means to whom and ideas about where to start this hobby. Now, we will try to get into some more technical details.

It is useful to revisit one point we mentioned in our previous article before moving on to equipment selection. It is wise to make your selection

of equipment in line with your budget. For this reason, we think it is helpful to choose equipment by measuring the enthusiasm within us and by recognizing our skills in this hobby. We should always remember that it is a person who takes the photo. As our number of shots increase and we compare the results, we will be able to see our needs more easily and make more optimal choices for ourselves as aviation photography enthusiasts.

Learning about the capabilities & limits of our equipment

In order for a snapshot to achieve a good result, the parameters that are inseparable and complement each other should be adjusted correctly. Our camera, lens, shutter speed, light, distance to the object, diaphragm setting, ISO setting, static state of the object, storage unit that we utilize, and supportive equipment are examples of these parameters. All these parameters affect the result that will occur after we press the shutter.

Perhaps one of the most important of these parameters are the cameras we use and of course their capabilities. In order to fully comprehend this issue, it is

helpful here to continue by sharing some examples.

Selection of camera body

Factors such as processor speed, physical ergonomics, menu ergonomics, auto focus point, resolution and number of shots per second are important in the camera body. In aviation photography, in order to capture the right moment in moving object shots, we should have a camera that has a high shooting speed and that the settings can be changed quickly, if necessary.

High resolution, on the other hand, is essential in the moments when the details are so crucial in cropping especially since the object is not always in the position we dream of, and in the printing phase.



© Sitki Atasoy



© Sitrk Atlasoy

The processor speed affects the speed of the process when all parameters come together, and we save the photo to the External or Device memory. A high-speed processor has an unquestionable significance in capturing "That Moment" where we take serial shots.

Due to the fact that there are many different activities especially in Airshow activities, spotters force their physical conditions, like in long marathons, in order not to miss any moment. At this point, it would not be wrong to expect our cameras to make us as comfortable as possible. A camera that is around 2.5-3 kg with the lens can start to feel like 10 kg after 3-4 hours. At points where we cannot compromise from our lens, accordingly its weight, the body's battery

weight can ease the burden for us a bit.

Selection of the lens

Selection of the lens is among the top factors that affect sharpness in our shots. We can achieve very good results with our wide-angle (12-24 mm, 16-35 mm, 24-70 mm, etc.) lenses in the static display area, where the object is close to us, such as on the cabin or the cockpit. Even though aviation photography is generally perceived as a hobby with a tele-objective, great results can also be achieved in shots with wide-angle lenses.

In cases where the distance varies and frequent lens replacement is not possible, we can consider medium tele-objective lenses.

We recommend that the aperture ratio should not exceed $\frac{1}{4}$ (70-300 mm, 100-400 mm, 200-500 mm, 150-600 mm, etc.) if medium tele-objective lenses are used. Otherwise, the sharpness of our photo may not satisfy us, since our focal length increases.

Let's consider the 150-600mm lens that spotters mostly have. We can choose this lens in case there is a long distance between us and the object we shoot. Or, in other words we will have to adjust our position when we shoot an object with this lens. However, it may not always be the right choice to shoot from a long distance, for instance,

when we take a photo of an aircraft on the runway from ground to ground, at midday, in wet air, the blur due to the water vapor between us and the aircraft will adversely affect the quality of our photograph. In this case, we can consider 2 alternatives. Firstly, using a wide-angle lens by approaching the object as close as possible, and secondly, taking a ground to air photo immediately after the aircraft's takeoff.

If our selectivity has increased in the subjects we will shoot after a certain number of shots, we can consider moving on to prime lenses to further improve our shooting quality and clarity.



© Sitrk Atlasoy



A prime lens (300 mm, 400 mm, 500 mm, 600 mm) can be preferred to shoot a moving object sharply and clearly from a long distance.

Autofocus:

The autofocus of our camera gains prominence, especially during the shooting of moving objects. In order to catch an object moving at 200 knots at the time of take-off, a camera having an effective autofocus feature that can capture our speed is required in addition to our experience and hand-eye-brain coordination. While the saturation and clarity of our snapshot can satisfy us in the shooting of commercial aircraft taking off at a speed of 200 knots with a camera having a medium format focus speed, we may not be able to provide sufficient clarity and will have a blurry frame for the aircraft making

demonstration flights at high speeds. Autofocus is done through software on DSLR cameras. At this point, the number of autofocus points is important for the software to decide if the frame is sharp and clear.

Storage units

No matter how good our camera and lens are, it can be very difficult to capture the right moment of moving objects. At this point, just as in the production line of a factory, the photography cycle process should be processed completely and continue its cycle. Capturing "That Moment" is only possible with the timely recording of many unstoppable flowing moments. The choice of our memory card that we use at this point is the determining factor for us. Especially for high speed flights, it is possible to

make a composition work only with the maximum write rate as well as all other parameters. A card having a high write rate can offer us more options with serial shots instead of the chance to capture "That Moment" in one shot.

Monopod & Tripod

This type of camera that is preferred for long distance shots and night shots with tele-objectives may have disadvantages along with its advantages. For this reason, it should be preferred according to the shooting conditions. For example, when we photograph an object at a distance with a tele-objective, a 1 cm shift flickering available at the point we stand will lead to the object not to position in our frame as we desire because of the distance, or it will cause it to be blurry and not satisfy us in terms

of sharpness. In night shots, on the other hand, the selectivity of our camera will be on the light, especially among the dark objects. At this point flickering may cause light shifting and light trails, fixing our camera may be necessary in the 2 scenarios mentioned above.

However, it should be known that the use of a tripod also has disadvantages. These include limiting our mobility and restricting our angle for dynamic shots. Especially in Airshows, it may restrict us in times when our speed is also important.

The choice of using a tripod can vary from person to person depending on experience and habit. While some spotters can stabilize their body like tripod and do not need a tripod, some others can use a tripod like their body, and thus may not be affected by the above-mentioned disadvantages.

Conclusion

In this article, we touched on the capabilities and limits of our equipment related to spotting. In our next articles, we will be referring to the parameters we use in aviation photography and the preparation stages before spotting.

The insight we share with you in line with our own experience puts a smile on our faces in our photos. We wish for you to get out there and capture shots that will leave a smile on your face as well 😊





by Gökhan Demirdöken,
Researcher & English
Language Instructor

Pilot English Proficiency

A Global Challenge for the ICAO and the Aviation Industry

2003 was one of the milestones in the history of civil aviation and air travel. That year was the 100th anniversary of the Wright Brothers' first flight and the whole aviation industry was getting ready for a remarkable countdown for the celebration of the 60th anniversary of the ICAO. Meanwhile, the theme of the 2003 edition of the International Civil Aviation Day, celebrated on 7 December annually, was set "For 60 Years... Setting the Standards for International Civil Aviation". In his message on December 3, 2003 marking the anniversary, Dr. Assad Kotaite, then President of the ICAO Council, pointed out the great achievement of the Wright Brothers. However, Dr. Taieb Cherif, then Secretary General of the ICAO, shed light on a more remarkable event in the history of aviation, safety, and he continued "In 1947, the first year that the ICAO kept records, of 21 million passengers carried, 590 lost their lives in 34 aircraft accidents. In 2002, with over 1.6 billion passengers

carried, there were 791 fatalities in 14 accidents. The ICAO is indispensable to the safe and orderly growth of international civil aviation". What Dr. Taieb Cherif pointed out for the first time was the beginning of a series of events to take place in aviation in the upcoming decades with regards to setting standards and improving safety both on the ground and in the air.

The rise in air traffic incidents had already paved the way for taking strict safety measures. In March 2003, the ICAO Council adopted amendments to Annex 1 – Personnel Licensing, Annex 6 – Operation of Aircraft, Annex 11 – Air Traffic Services, to ensure that flight crew, air traffic controllers and aeronautical station operators comply with the language proficiency rating scale (at Level 4 or above) by 5 March 2008. On September 2004, the ICAO's Secretary General approved the first edition of the ICAO Doc 9835 – Manual on the Implementation of ICAO Language Proficiency

Requirements, which was a comprehensive document on various aspects related to language proficiency training and testing. The purpose was to support member states' efforts to comply with the strengthened provisions for language proficiency. At first, such a crucial regulation by the ICAO to improve safety standards sounded good. However, the concerns over the effective implementation of the newly announced program and over the resources available soon started to be mentioned on various occasions. The causes for such concerns were mostly related to the complexity of assessing the proficiency in any language. No matter how comprehensive and detailed the items in the rating scale can be written, the reliability of raters and the differences in the implementation of language proficiency tests are always quite difficult to ensure. While an average speaker of English could be rated at Level 4, the same person could easily be rated at Level 5 or 6. In

such an occasion, this variance would make a great difference in terms of flight operations because while the first speaker would need to certify his/her proficiency in the future, the other speaker would not need to comply with the same requirement again. Such concerns have already proven to be true as pilots displayed a preference to countries where the language proficiency test taker could be rated at Level 5 or 6 more easily when compared to other member states. Another serious problem that the ICAO faced throughout this process of implementing the new regulation was the lack of resources. Although the deadline was extended, the member states were in need of both the test materials to be developed and the appropriate locations to serve the great number of pilots and air traffic controllers who would take the tests. Testing and evaluation have always been crucial components of any language assessment process. Yet, it is even more crucial when it

second edition included additional guidance for civil aviation authorities and test service providers on processes for testing candidates. However, the biggest step taken by the ICAO was in October 2011 when the Aviation English Language Test Service (AELTS) website was put into use. By measuring test performance against the Language Proficiency Requirements, the ICAO made it possible to provide important information on test quality so that its member states, pilots and controllers can make the most informed selection possible when choosing a test provider.

While the headquarters of the ICAO was trying to do their best to provide solutions for this issue, the member states were expected to take necessary steps before the extended deadline. Initially, the member states were asked to report their current status and readiness for the implementation of new regulations. As of January 3, 2013, one hundred sixty-seven member states had provided information concerning their status of implementation. Eighty-one of them indicated compliance with the requirements whereas twenty-three states did not provide any implementation

plan or any statement of compliance.

Meanwhile, more and more reports started to be published in order to better understand the feasibility of the language proficiency rating scale. The most significant report was published by the Federal Aviation Administration of the USA in May 2009. It was rather a final report of a series of reports. The previous reports provided a detailed description of 51 hours of routine ATC transmissions and how the complexity and length of ATC messages affected pilots' readback performance, prevalence of ATC readback errors, breakdowns in communication, and requests for repetition made by commercial U.S. and foreign airline pilots. The last and the final report provided insights into a better understanding between the operational levels of the language proficiency scales and communication problems. The report concluded that pilots flying for countries whose primary or official language was other than English showed varied performance in terms of language proficiency and that foreign pilots made more of the communication problems. Consequently, the inevitable need for a more secure environment

for flight operations was once again put forward in the aviation industry.

Turkey, one of the council member states of the ICAO, has taken important steps towards implementing the new regulation and several opportunities are offered for aviation personnel who are required to certify proficiency in the English language. The Turkish Directorate General of Civil Aviation (DGCA) published an order with regards to the regulations identified by the ICAO. The order disclosed the conditions under which language proficiency test centers can be authorized to test aviation personnel within the borders of Turkey, and to specify the language proficiency of pilots and air traffic controllers. The execution of the orders in Turkey towards implementing new regulations in member states authorized several institutions under the supervision of the Turkish DGCA. As of 2020, there exists six institutions which are authorized by the Turkish DGCA to test the English language proficiency of pilots in accordance with ICAO requirements. Also, there are 6 approved institutions for evaluating the same proficiency of aircraft maintenance personnel in Turkey.

The rapid increase in the

demand for more and more pilots, air traffic controllers, and aircraft maintenance personnel has so far made it quite difficult to quickly implement the decisions made in 2003. Seemingly, the biggest challenge, as always, has been the time restriction for ICAO member states. Both the headquarters of the ICAO and member states put forth a great amount of effort to meet the latest schedule by 2011. More than eight conferences were held to discuss the implementation process in the smoothest way possible, several workshops have been organized, and many reports have been published over the past seventeen years. Although it has been a rather painful and radical change for everybody who is involved in aviation, the ICAO seemed to have reached what Dr. Taieb Cherif, Secretary General of the ICAO, stressed in 2003, at the annual celebration of International Civil Aviation Day, "The ICAO is indispensable to the safe and orderly growth of international civil aviation" as the responsibility of the ICAO. By and large, the overall progress so far and the full implementation plan promise safer flight operations in the future all around the world 🌍



by Dr. Emir Öngüner
Freelance Researcher in
Aviation History

Elly Beinhorn: Female Pilot Achieved Record Breaking Flight from Germany to Turkey

By landing at Istanbul Yeşilköy Airport on July 30, 1931 after covering the distance between New York and Istanbul with a flight lasting nearly 49 hours, U.S. pilots Johnnie Polando and Russel Boardman beat the record of the longest flight in the world and Turkey gained prominent prestige in the realm of international aviation.¹ 4 years after this achievement, on August 13, 1935, a female pilot from Germany also attempted to make her mark with a similar record. Elly Beinhorn (**Photo 1**), who completed a world tour by herself in 1932, planned a route from Germany to Istanbul to beat the record of covering two continents and turning back in a day and once again announced her name to the world by covering a distance of 3,570 kilometers within 13.5 hours.² This

achievement had been unheard of in the history of Turkish aviation to date. In this article we will be addressing the subject with the translation of an original brochure written by Beinhorn in person and kept at the institutional archive of the German Aerospace Center (DLR) in Göttingen and with the news appearing on the Turkish press during that time.

The following is the story of the journey written by Beinhorn on August 17, 1935, after the completion of the successful flight:

“Typhoon” over Asia³

When I look back and think, I recall that I had been one of the people in the past to tell that world records were meaningless. These types of people are against world records; then again, they



Photo 1

believe in the necessity of world records in terms of the development of technology and industry, so they expect other people to assume such duty.

Let me come to the point after this inconsistency: I was flying over the skies of the United Kingdom in June. In those days, I did not have an airplane of my own, therefore I genuinely cared for this four-person Messerschmitt

Me 108 manufactured by BFW-Bavarian Aircraft Factories, accomplishing its maiden flight in 1934. I heard of the existence of this beautiful discovery upon my return from my U.S. flight and I was looking forward to have the opportunity to see and examine it closely. After my flight to the United Kingdom, I decided that it would be a pity to miss the chance to conduct a groundbreaking activity with this airplane since

¹ For detailed information: Polando, J., *Wings over Istanbul: The Life and Flights of a Pioneer Aviator*, Peter E. Randall Publisher, Portsmouth, NH, 2000, pp. 41-61

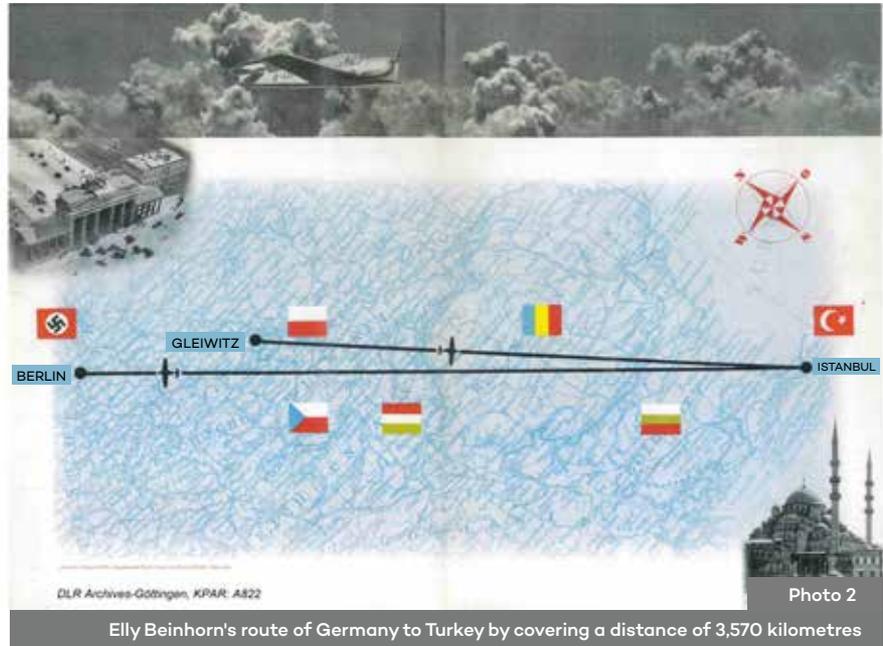
² For Elly Beinhorn's (1907-2007) autobiography: Beinhorn, E., *Alleinflug: Mein Leben*, F.A. Herbig Verlagsbuchhandlung, 2007, München. A similar version of the translated text in this article has also been mentioned in her own book: *ibid.* pp. 212-221

³ Original document: DLR Archives, KPAR: A822, 17.08.1935

it looked as if it had been designed for such achievements.

Me 108's most critical feature is that as the fastest airplane in its category with a speed of 300km/hour, it has an aerodynamic design as well as a higher fuel capacity. It reminds me of a flying limousine with an interior design and a cabin with four leather covered seats where the passengers would feel as if they were executives. I was particularly affected by its elegant look in the air with its retractable landing gear. The maximum speed could be achieved on account of this feature.

In light of my experiences so far, the eight-cylinder HM 8 Hirth engine of 250 horsepower displayed a quite robust performance at a high efficiency rate. Upon my return to Germany, I met with the BFW and Hirth Motoren GmbH companies and asked them to equip the airplane with high-capacity fuel tanks so that I could manage the airplane according to the flight I had planned to conduct soon. Then, working over the map, I started to think of a safe route that I could fly over in a single day. Since the airplane would not be ready before the first ten days of August, unfortunately the longest daytimes would be left behind. Finally, I decided to



depart from Gleiwitz and draw a circle over the Asian coast of the Bosphorus and land in Istanbul. Then I would refuel the airplane and take off, heading towards Berlin (**Photo 2**). Gleiwitz was located at the most reasonable position in Germany in the direction towards Asia. Moreover, I preferred Gleiwitz in order to gain two hours during the flight to Istanbul; in that way I might gain more time even under possible unfavorable weather conditions. BFW, Hirth and Shell companies helped me incredibly throughout the preliminary stages. I am utterly grateful for their efforts to render this activity successful.

I arrived at Gleiwitz on August 12. The customs transactions and similar red tape had already been completed during the day for the flight to

be launched at night. The engine was once again checked by the team of Hirth Company, the representatives of BFW examined the hull, wings and flight yokes while the Shell staff carried the colossal fuel cans one after another to fill the fuel tank. The airplane was available for departure at 6:00 p.m. I gently caressed the nose of the airplane and went to the hotel for rest. I woke up quite vigorously after sleeping until 1:00 a.m. At 2:00 a.m. It was pitch dark since the moon retired, yet many members of the press remained at the airport. I thought that the journalists criticized me for having selected a strange departure time, but I did not have another choice.

I was accidentally locked inside the airport building during the final check of the engine and nobody

heard me screaming due to the noise of the engine running outside, 100 meters away. When I was about to lose all hope, I managed to get out of the building by jumping out from the window. Ten minutes later, I was in the air. The departure took place at the beginning of the dawn at 03:40 a.m. This was not my first full-fledged flight but flying from a runway with a short take-off distance of 180 meters was unfamiliar for me.

In the beginning of the flight, first I drew my knees to my chest and sat, then I stretched and lay a bit and placed the air bag that I brought with me between my legs. I switched the lights occasionally to check the display panel. Shortly after the take-off, I entered to a foggy area that covered the space

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between the foot of the Tatra Mountains and the Pustza River in Hungary. The fog over the ground started to disappear upon the break of the day. I tried to figure out my location by observing the nearest settlements. Since "Typhoon" was not equipped with a radio, I had to identify my location by using the compass and the map. The train station at the tiny visible Hungarian town was quite camouflaged and the caption over it could hardly be read. Right at that moment, I thought of benefiting from a technical feature of Me 108. Everyone knows that someone inside a plane flying at a speed of over 250km/h cannot observe what is around quite well. So, I opened the flaps for a short while and decreased the speed to 100km/h, I examined the ground, identified my location and noticed that I was at the correct direction over Hajdúnánás. Then I closed the flaps and reached the normal cruising speed.

The engine was running at the front like a noisy sewing machine. I had no thoughts about my fatigue since I was busy observing the surroundings and discovering a brand-new geography. I coincided with a rain cloud that I did not



Photo 3

take seriously; however, it worried me slightly for my return.

With the help of the high-speed engine, I was quickly passing all the zones over the map and since the take-off at 6:00 a.m., I already reached the fifth country. After the high mountains of Romania, I flew over a valley towards the Bulgarian border. The weather cleared up and I was surrounded by cloudless blue skies. At the horizon I was able to see the Sea of Marmara that I flew over during my two previous flights. At that very instant, I realized how hard it was to sit in the cabin for so long. Frustrated, I was trying to get comfortable by placing the air bag from one side to the other. I was about to close my eyes from fatigue, but it stopped when I started to descend.

I had a slice of bread and a few grapes during the flight. I did not drink anything as I was not thirsty. When approached from Europe, the airport

at Yesilkoy was situated at the back of a forbidden zone in front of Istanbul. We agreed with Mr. Hennig for the deployment of a person at the Asian part of the Bosphours for the confirmation of my flight's passage over the Asian continent. Therefore, Mr. Hennig arranged the deployment of a Turkish officer at the Haydar Pasha Station at the South of Üsküdar district. I flew over the Asian continent at 9:20, 5 hours and 40 minutes after the take-off and that Turkish officer had been the first person to notify Germany of my passage to Asia.⁴

From Germany to Asia in 5 hours and 40 minutes with a tiny sport airplane! I realized the meaning of this when I compared it with my first flight experiences in 1928. I landed at Yesilkoy at 9:34 and was welcomed by an enthusiastic crowd waiting for me with flowers, chocolate, soap bars, towels, delicious food and even with a bathing suit so

that I could swim and cool off in the Sea of Marmara. I have to mention that Dear Mr. Hennig got too excited and he fell to the ground. **(Photo 3).**

The welcoming ceremony at the airport was perfectly organized and I was really touched by it. In order to celebrate my landing, the German Colony⁵ composed of German Chief Consul, Deputy Ambassador (chargée d'affaires) of Germany, Director General of Deutsche Bank in Turkey Mr. Weidmann and Director General of Selaheddin Ali Pasha's company Mr. Hitzigrath⁶ were at the airport **(Photo 4).**

I can say that all Turkish people involved in the project were there. I heard so many names in the first 5 minutes that I cannot even pronounce, I was able to keep only a few in mind. The executives from the military, representatives of various sports clubs in Turkey, the first Turkish female pilot, Secretary General of the Olympics Committee and the

⁴ The name of the Turkish Officer was not stated in the text.

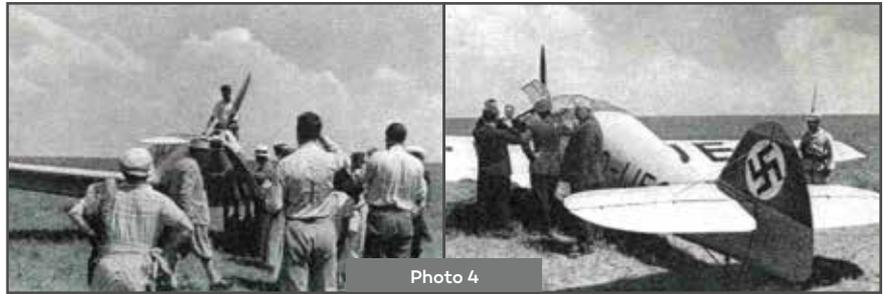
⁵ The name given to the Germans residing in Turkey during the Early Republican Period.

⁶ This is incorrectly stated as the "Selahattin Adil Pasha Company" in the original text. The company in question may be the Atelier for military manufacturing and the referred person may be Kurth Hitzigrath.

members of all national and international press were gathered there. Everyone around me was full of joy and I could observe the happiness I created in the Turkish people because of my selection of their country for this flight. By the way, I must also mention that I clearly did not find it quite sympathetic of some Turkish people that were asking me to sell and leave my airplane there.

I was invited to a hotel nearby for breakfast. However, taking the return path that would possibly be challenging into consideration, I decided to avoid losing time and had the breakfast inside the airplane. One of the most interesting moments I had there was the moment I was asked if I would like to wash my hands.⁷ "Sure", I replied and I was directed to a small door, I had difficulty in walking among a group of nearly 100 people. I was quite surprised to see a bathroom that I could never imagine. As I tried to leave the bathroom, the crowd outside happened to block the door so once again I had difficulty to get out. Then accompanied by the same group, I entered another bathroom which I was accustomed to.

Yes, the aforementioned had been my experiences at the end of a long flight.



I returned to my serious state again. I started the engine at 10:47 after a break of nearly an hour and shook Mr. Hennig's hand and said goodbye to him. He was the person who made sure everything was flawless during my 1-hour break in Istanbul. Hennig had a few more days to rest at the Sea of Marmara until the next scheduled flight to Germany while I was aware that I was about to endure the hardest part of my flight as the return path was 450 km longer than the arrival. Besides, I was not fresh as I had to wake up at 1:00 a.m. in the morning and I realized my eyes were once again about to close down shortly after my departure from Istanbul. The weather was spectacular; the ground below was flat and therefore I was able to relax a bit.

My flight back over the Transylvanian Alps had been easier than my arrival. The rain clouds ceased to exist, and I was effortlessly advancing at an altitude of 3,000 meters. I had some fruit and cakes and drank all the coffee in the flask. For those who do not fly, I have to mention that one can take care of other tasks inside a modern passenger aircraft. The flight in the free space above is quite different than car travel on the ground, therefore drivers have to be attentive towards all types of unexpected obstacles throughout driving. I, on the other hand, read during my return half of the magazine that Mr. Brindlinger from BFW Company gave me as I started the engine.

On my return, dark clouds appeared at the Tatra

region which I passed effortlessly during my arrival, so I had to fly blind by merely checking the control panel for a certain while. I must confess that I was pleased to have attended a course for flying blind shortly before so that I could be able to fly under such conditions. Because, in the old days, I had panicked a bit when passing clouds in tiny sport airplanes while flying without a radio connection.

At last, I arrived back in the land of Germany; I flew over Gleiwitz and a message was transmitted to Berlin from the airport there. I had 200 liters fuel remaining at that moment and I would be able to fly 1,000 km more. Before I reached Berlin, I was filled with the joy of arriving at home, the weather went



⁷ She mentioned in her memoirs that in fact they implied the need for toilet; see: Beinhorn, *ibid.*, p. 218

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bad and it started to rain. The clouds covered all places from the ground up to my nose; I was about to crash into the radio tower at Königswusterhausen. Beyond all my projections, it rained quite heavily. I thought that this could restrain the press members and photographers; then I realized I was wrong.

At 18:08, "Typhoon" landed at the Tempelhof Airport where I was welcomed by countless people (Photo 5). Most of the people there learned about my project later as I managed to cover my project of flying to Asia from Germany and turning back in one day as much as possible. I was happy to see the representatives of the Ministry of Aviation, Tempelhof Airport, German Aviation Industry Association and various industrial enterprises along with my friends Udet⁸ and von Gronau⁹ and airwomen Hertha von Gronau¹⁰ and Luise Hoffmann¹¹ there. Everyone was busy asking me what I brought with me from Turkey. That question reminded me of the pain the thorns on the ground of Istanbul Airport had caused on the soles of my feet.

I drew away from the people welcoming me for a while and went to the hangar

where the Me 108 was located. The airplane stood there as if nothing had happened to her. I looked at the engine and thought once again: it is great to be among the people to benefit from the development of our technology and industry!

August 17, 1935 - Elly Beinhorn

Reflections in the Turkish Press

Beinhorn arrived in Istanbul through this groundbreaking flight to Istanbul in 1935, however it was not her first visit to Turkey. By detecting the Turkish Press, the first news on Elly Beinhorn can be recognized in an article dated December 7, 1931 informing that she would be flying over Turkish skies during her world tour back on that date. According to the news, Beinhorn would be taking off from Germany, flying over Turkey, Iraq, Iran, Pakistan and Singapore in Asian geography and then heading towards Australia. Beinhorn relayed in her memoirs that the flight permit was granted on December 3, 1931 and that she launched the flight on December 4, 1931 around 9:00 in the morning. She

Gleivitz - İstanbul gidip gelme rökörü

Alman kadın tayyareci bugün geliyor

Almanyanın ta
nınmış kadın uç -
manlarından Ma -
dam Elly Bein -
horn bugün Al -
manyanın Gleiwitz
şehrinden yola çı -
karak öğleden ev -
vel Yeşilköye ge -
lecek ve bir iki sa -
at kaldıktan son -
ra tekrar Alman
yaya dönecektir.



Madam Elly Be - Elly Beinhorn
inhorn bu suret -
le bir günde hiç durmadan Almanyadan
İstanbul'a gidip gelme rökörünü yap -
maktadır.

Photo 6

reached Sofia in seven hours and landed in Istanbul in the afternoon on December 5. According to what she wrote in her memoirs, Beinhorn stayed for a day in Istanbul and was fascinated by the city. She mentioned that the city's being located on two different continents added to its unique beauty. The next

day, Beinhorn reached the skies of Konya but due to the cold weather and snow, she had to make a forced landing and stayed and waited there for two days.¹² Beinhorn stated that Jim Mollison, who accomplished another record breaking flight, experienced a similar incident and added that Mollison had to make an

⁸ Ernst Udet (1896-1941): German war pilot crashed the second highest number of enemy planes after Manfred von Richthofen known as "Red Baron" during the World War I. He served as a bureaucrat in charge of Armament Department at the Ministry of Aviation during the rule of the Nazis. For his autobiography please see: Udet, E., Ein Fliegerleben, Motorbuch Verlag, 1995, Stuttgart

⁹ Wolfgang von Gronau (1893-1977): He made a world tour in 1932. He was assigned as the Deputy Minister of Aviation during the rule of the Nazis. For his autobiography please see: von Gronau, W., Weltflieger: Erinnerungen 1926-1947, Deutsche Verlagsanstalt, 1955, Stuttgart

¹⁰ Wolfgang von Gronau's wife

¹¹ Germany's first female test pilot

¹² On Beinhorn's brief time in Turkey in 1931 please see: Beinhorn, *ibid*, pp. 78-82

unauthorized forced landing in Konya, and that the Turkish authorities reacted and then entertained him at a hotel for five days and sent him abroad on a train.

In respect with the record-breaking flight, Turkish newspaper Cumhuriyet announced on August 13, 1935 that Beinhorn launched her flight towards Turkey (**Photo 6**) and in the Ulus newspaper dated August 14, 1935 Beinhorn was mentioned briefly with the date of August 13. (**Photo 7**). The headline of the Cumhuriyet newspaper on August 14 "from Germany to Turkey and back in a single day!" detailed information on Beinhorn's landing at Yesilkoy Airport and the welcoming ceremony held there (**Photo 8**). A difference between the durations of the flight in the Turkish press and in the text written in German by Beinhorn could be observed.

While Beinhorn indicates her flight from Gleiwitz to Istanbul lasted 5 hours and 40 minutes in her brochures and memoirs, she expressed the duration of the flight as 7 hours and 6 minutes in her personal statement to a Turkish newspaper. There is a possibility that the cause of difference had been the time-difference between the two countries.

Differences could be spotted in the names and titles of the people in the welcoming committee given in the Cumhuriyet newspaper and the names stated by Beinhorn. According to the information provided by Beinhorn, Turkey's first female pilot had also been at the airport to welcome her, yet no such information appeared in Turkish press. Mr. Ismail Hakki – President of the Turkish Aircraft Society, representatives from the Turkey Turing and Automobile Association,

Berlinden İstanbula Rekor yapmak için uçan alman kadını

İstanbul, 13 (A. A.) — Bir rekor uçuşu yapmak üzere bu sabah saat 4, 30'da Berlin'den uçakla kalkan bayan Elli Benhorn, bu sabah saat 10. 30'da Yeşilköy hava istasyonuna inmiştir.

Bayan Elli Benhorn, benzin almak için bir saat kalmış ve gene Berlin'e doğru havalanmıştır.

Photo 7

Almanyadan Türkiyeye gidip gelme bir günde!

Mell. Elly Beinhorn dün sabah 10,30 da Yeşilköye inip bir saat sonra havalanarak Almanyaya döndü ve bu suretle yeni bir rökör yaptı



Kadın tayyareci Mell. Elly Beinhorn tayyaresinde ve kendisine hediye verilenlerle görüşürken

Almanyanın tanınmış kadın uçmanlarından Matmazel Elly Beinhorn hususî uçağı ile dün sabah Almanyadan kalkarak İstanbul'a gelmiş ve bir saat kadar Yeşilköyde kaldıktan sonra gene Almanyaya dönmüştür.

Henüz 27 yaşında ve çok sevdiği olan Alman uçmanı dün sabah saat 3.36 da Cenevi Prayansa Gleiwitz şehrinde kalkarak, saat 10.30 da Yeşilköy'e gelmiştir. Bu suretle genç uçman 1450 kilometrelik hava yolunu 7 saat 6 dakikada katmıştır.

Yedi saatlik hava yolculuğuna tahminen yorgunluk eseri göstermeyen uçman yere iner inmez:

— Ziya nerede? diye sormuştur. İki yıl önce Yeşilköydeki uçak istasyonunda çalışan bu Türk garcinin ismi

Diyarbakır'da olduğunu öğrendince Matmazel Beinhorn biraz üzülmiştir.

Yeşilköy uçak istasyonunda Matmazel Beinhornu karşılayanlar arasında Türk Tayyare Kurumu başkanı Ismail Hakki, Türkiye Turing ve Otomobil kulübü İleri gelenleri, Arminius Olimpiyad komitesi Türkiye mümessili Ekrem Rüştü, Alman elçisi maslahatgüzarı M. Fabricius, Alman konsolos doktor Toepke, genç uçmanı İstanbulda karşılamak üzere sureti mahsusunda şehrimize gelmiş olan Berlin uçak istasyonu direktörü M. Hennig, Alman elçilik ve konsolosluk memurları ile kalabalık bir meraklı kitleyi Yeşilköy'e getirmiştir.

Friedlein Beinhorn gazetecilere bunları söylemiştir:

— Güzel şehrinize bundan evvel üç refer daha gelmişim. Şimdi de dördüncü seferimi yapıyorum. Son defa iki yıl önce buraya gelmişim.

Bu refer Tayfun adındaki kendî uçağımı bir günde Almanyadan İstanbul'a (Arkan 4 üncü sahifede)

Photo 8

Turkish Representative of the International Olympics Committee Mr. Ekrem Rustu, Germany's Deputy Ambassador (chargée d'affaires) to Ankara Mr. Fabricius, Chief Consul to Istanbul Dr. Toepke and Director of the Berlin Airport Ground Services Mr. Hennig are among the people indicated. In the same interview, Beinhorn landing in Yesilkoy at 10:30 spoke of the weather conditions and her experiences during the flight and took off to Berlin at 11:15 after the welcoming

ceremony and her brief break for rest. She signaled that the air mail services between Turkey and Germany would possibly be launched in her statement with the following words: "This time, I intended to beat the record of flying to Istanbul from Germany and back in a single day with my own airplane named Typhoon. If I achieve this, Daily air mail services will be launched between Berlin and Istanbul."

The most interesting part

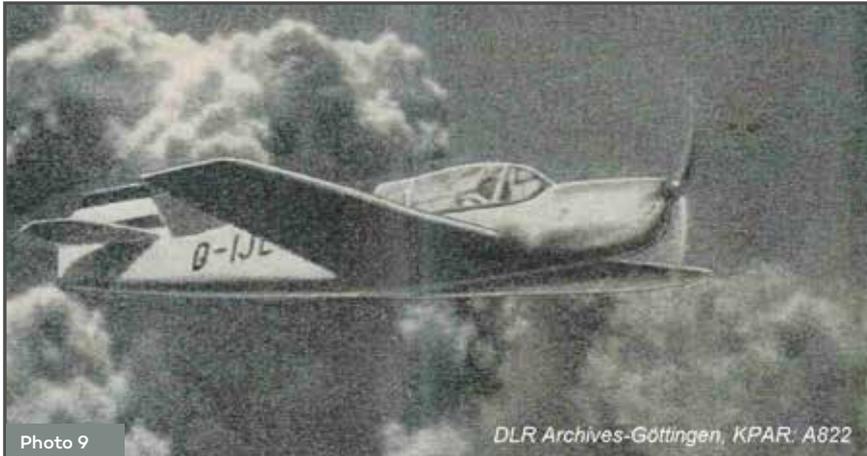


Photo 9

DLR Archives-Göttingen, KPAR: A822

of the news is without doubt her question “Where is Ziya?” as soon as she got off the plane, wishing to see the young guy named working at the Yeşilköy Airport she met previously in Turkey. The press states that Beinhorn was disappointed to learn that Ziya lived in Diyarbakır then. This personal detail attracts attention as one of the most beautiful examples of the friendship between Turks and Germans at the time.

Typhoon’s reflections over Asia

Taking a look at the content of news appearing in Turkish press, the record breaking flight attempt that took place on August 13, 1935 was successfully completed and created great reactions in the country. These types of record beating attempts realized during times when aviation recently started to develop in Europe and

across the world should be qualified as demonstrators of prominent prestige both for pilots and for the targeted countries. Moreover, since today’s technical infrastructures such as modern navigation, autopilot and radars did not exist 85 years ago, the value of covering a distance of 3,570 km within 13.5 hours in terms of technical facilities should be appreciated. German female pilot Elly Beinhorn selected Turkey, where she

had been a guest during her previous record beating attempts, for a different groundbreaking flight with the newly manufactured Me 108 (**Photo 9**) and made her mark on a critical project to launch daily air mail services between the countries, as she also mentioned in her interview. In her memoirs, Beinhorn concluded the chapter she wrote on this record beating flight with the following words:¹³ “*This flight created great reflections across the world. ‘Me 108’, which was not known by anyone except Germany until August 12, started to be referred as ‘Messerschmitt Typhoon’ in the aviation literature in many regions in the world.*”

On the 75th anniversary of this groundbreaking flight, postage stamps were printed in Germany with Beinhorn’s name and circulated on August 12, 2010 (**Photo 10**).¹⁴ Making her mark by herself on many historical flights, Beinhorn published 13 books throughout her career to relay her experiences, and ended her career as a pilot in 1979 and in 2007 she passed away in Munich at the age of 100. Hosted many times by the Turkish skies, Elly Beinhorn is recognized as a historical personality and an exemplary character for female pilots across the world 🌍



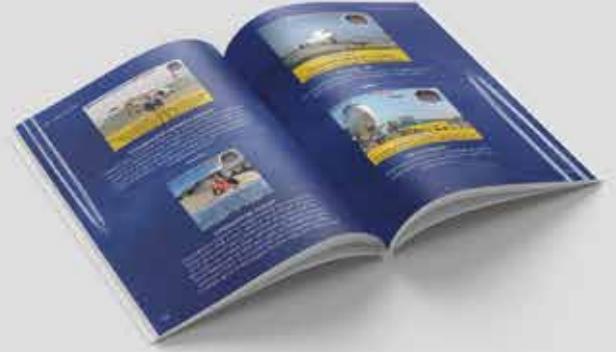
Photo 10

¹³ Beinhorn, *ibid.*, p. 221

¹⁴ Die Königin der Lüfte: 75 Jahre Rekordflug der Flugpionierin Elly Beinhorn, Postfrisch - Das Philatelie-Journal, Juli/August 2010, Ausgabe: 4, pp. 14-15

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by Şebnem Akalın

Singapore Airlines Launches A350-900 on Istanbul Flights

Singapore Airlines has been conducting flights to Turkey for 32 years uninterruptedly since October 29, 1987 and holds the title of “the first airline flying from Asia to Turkey”. The airline is now preparing to be the first airline that flies to Asia from Istanbul with the A350-900. With mutual flights to be made with the A350-900 from Istanbul Airport on Monday, Wednesday, Friday and Sunday until March 27, 2020 (winter timetable), Singapore Airlines has also become the first and only airline company offering their guests in Turkey the newest flight class, Premium Economy Class.

Taking off from Singapore Changi Airport at 01:45 local time on December 1st, the A350-900 landed at Turkey's Istanbul Airport at 08:25 local time. To witness this special moment, press members, including myself, took our place in the hall at the Istanbul Airport International Terminal. While the A350-900 was completing its taxi and proceeding towards the parking position, the traditional welcome ceremony (water salute) was made for Singapore Airlines' A350-900. After it was parked, we started to tour the aircraft accompanied by Singapore Airlines personnel, HAVAŞ, IGA, and Civil Authority. After touring Business Class, we had the opportunity to see Premium Economy Class and receive detailed information. What will the airline be offering to passengers in Business Class and Premium Economy Class flights? I'll share the details shortly below. But before that, let's briefly touch upon the speeches made at the ceremony.

Singapore Airlines held an exciting event at Istanbul Airport for the first flight



of its new aircraft, the A350-900, which brings the comfort of Premium Economy Class. The event was attended by a distinguished group of guests, including Istanbul Airport Administrative Chief İsmail Şanlı, IGA CEO Consultant Melih Mengü and Singapore Airlines Regional President Sek Eng Lee. Especially at the end of the dance show that fascinated guests with its Anatolian-themed choreography, the giant ribbon connecting the two towers formed by the dancers symbolizing the cultural bridge between Istanbul and Singapore received a big round of applause from the audience.

Sek Eng Lee: “We trust Turkey; we've introduced Premium Economy Class”

Singapore Airlines Regional President Sek Eng LEE, in the opening speech of the event said, “The fact that we have put into service our newest and most modern aircraft, the A350-900, and introduced the comfort of Premium Economy Class in Turkey, is a reflection of our trust in Turkey”. Reminding the audience that the first flight to Istanbul coincided with Republic Day celebrations on October 29, 1987, Lee added that they are grateful for the great support provided by Turkish customers as well as for the new airport.

Special menu and travel pillow prepared for the first flight

For the first flight of Singapore Airlines to be made by A350-900 from Turkey to Singapore, a special menu was prepared and the dishes on the menu were determined by the votes of more than 100,000 people following the Singapore Airlines Turkey Facebook Page. Dishes included on the Business Class menu were Stuffed Vine Leaves with Olive Oil, Turkish Kebab and Special Turkish Dessert (Kadayıf)

and the passengers flying in Premium Economy and Economy Class are offered the most favorite flavors of Turkish Cuisine such as Stuffed Eggplant with Onion and Tomato (Imambayıldı), Turkish Kebab and Rice Pudding. Additionally, a travel neck pillow in four colors, made from Sarong Kebaya cabin attendant uniform fabrics, designed by the famous French fashion designer Pierre Balmain was given as a gift to all passengers.

An aircraft minimizing jetlag effects

Singapore Airlines' Airbus 350-900 aircraft has a total of 253 seats; 42 Business Class, 24 Premium Economy and 187 Economy Class. Offering a superior travel experience to its passengers with advanced technology and operational efficiency, Airbus 350-900 features a higher ceiling, larger windows, and wider interior body, as well as a specially designed interior lighting system to minimize the effects of jetlag. The aircraft also offers Wi-Fi access to its passengers and high technology touchscreen in-flight entertainment systems, KrisWorld.



Şebnem Akalin with Singapore Girl at A350's Economic Class

By introducing one of the most modern aircraft, the A350-900, Singapore Airlines will reduce carbon emissions by 25% and burn less fuel than with the previous aircraft type. The A350-900 has a more aerodynamic design, lighter materials, much quieter engine and more space.

How is the flight different in Premium Economy Class?

Offering a more spacious cabin with a seat configuration of 2-4-2 in the Premium Economy class, Singapore Airlines used comfortable seats with a greater width of 19.5 inches in this cabin. While the seats that can recline up to 8 inches make long-distance travel more

comfortable, the foot support feature is offered to the passengers for a leg rest, like in the comfort of Business Class. The Premium Economy class, which also has new and fast USB ports, aims to make the journey more efficient with its individual reading lights and large bi-fold tray tables.

You can select from the wide-ranging movie archive and enjoy entertainment on 13.3 inch wide screens with headphones that completely block out external noise and this allows you lose track of time on long journeys. Singapore Airlines aims to make a difference in catering to their guests needs by providing an option for Premium Economy guests to order special meals on flights departing

from Singapore. Another advantage that Premium Economy Class offers you is champagne accompanying your meal which is prepared by famous chefs including Michelin star chefs.

The most important factor for passengers to prefer the economy Premium class is undoubtedly the ticket prices, because it will be possible to get service close to the comfort of Business Class and to fly cheaper. Even though the Premium Economy Class prices differ for each flight, you should be kept in mind that it is relatively very cheap compared to the price of Business Class. So, it is useful to follow Singapore Airlines' special offers regularly.

Have a safe flight...



The National Primary Surveillance Radar Installed and Set Up at Gaziantep Airport

by İbrahim Sünnetçi

In the civil aviation domain, Primary Surveillance Radars (PSRs) are used to be integrated with the MODE-S interrogator, which is based on a cooperative surveillance technique.

The installation and set up efforts of the MGR National Primary Surveillance Radar (MGR/PSR), with a redundant structure, was completed in mid-February 2020 at Gaziantep Airport. Developed under the MGR/Mode-S SSR Radar Development and Installation Project signed between General Directorate of State Airports (DHMI) and TÜBİTAK Informatics and Information Security Research Center (BILGEM) in December 2017, the MGR, which has an algorithm capable of tracking moving targets and measuring the location and density of precipitation, will be delivered to DHMI until the end of February after the completion of the tests.

The MGR, the tower and building construction of which was completed at Gaziantep Airport, is of critical importance in terms of being the first civil aviation radar system developed with national and domestic resources in Turkey. The entire infrastructure and software of the system was also developed indigenously.



The MGR Radar System allows traffic controllers to perform their duties more safely and securely and aircraft will have safer landings and take-offs thanks to its capability to detect the positions of the aircraft (distance, direction and altitude) within the air traffic control services.

History of the project

The MGR, National Primary Surveillance Radar was developed for the purpose of civil or military air traffic control and determination of precipitation within the scope of the KUSRAD R&D Project in cooperation with TÜBİTAK BILGEM and DHMI. The MGR/PSR is a Solid-State Pulse-Doppler Radar operating in S-band and was designed

in accordance with the ICAO and EUROCONTROL standards and guidelines. By using coherent advanced signal processing, aircraft up to 60 nautical miles under different weather conditions can be detected and tracked. The system can simultaneously track up to 1,000 targets via Moving Target Detection (MTD) and Clutter Reduction capability by using low/high beam selection, sensitivity time control (STC), adaptive clutter map and Doppler filters. Also, the weather channel can provide 6 levels of rain strength information at 1,4° to 0,95 nautical miles resolution and 2D location of rain zones. The system has a clear spectrum output in accordance with the limits defined by NTIA (National Telecommunications

and Information Administration). The MGR, Turkey's first national PSR Radar System, is expected to be considered for meeting DHMI's future new PSR (Primary Surveillance Radar) requirements as well as PSR modernization needs with national means.

The MGR/Mode-S SSR Radar Development and Installation Project was launched to further develop the existing MGR/PSR, the acceptance of which took place in 2017 and was installed and set up at the TÜBİTAK BILGEM Gebze campus, to achieve redundancy and to develop a new Secondary Surveillance Radar (SSR) system with MODE-S capabilities and then integrate it to MGR/PSR to achieve a working

combined PSR/SSR Mode-S radar system.

Within the scope of the MGR /Mode-S SSR Radar Development and Installation Project the existing MGR/PSR System was rendered redundant with the necessary additional improvements made by TÜBİTAK BILGEM and then was installed in the vicinity of Gaziantep Airport. Afterwards, the demonstration of the Mode-S SSR Radar System prototype, which is being developed by TÜBİTAK BILGEM with national facilities, is planned to be carried out in the TÜBİTAK Gebze campus, and later integrated into the Gaziantep MGR/PSR System. Finally, both radar systems (MGR/PSR + SSR/Mode-S) will be integrated into the Gaziantep Approach Control System, which will be installed by DHMI under a separate contract and will be actively used in air traffic control services. The Project with a 42-month timeline will be completed in 2022. The interface of the MGR PSR + SSR / Mode-S System with other systems is in ASTERIX (CAT 240, CAT 34, CAT 48, CAT 008) format, MGR outputs can be transferred to other systems at the airport via ASTERIX format over TCP-UDP/IP.

As part of the installation work of the PSR + SSR (Mode-S) version of MGR for air traffic control at Gaziantep Airport, a tender was held on December 28, 2018 for the construction

of the Reinforced Concrete Radar Tower and Control Center on an area of 4,000m².

According to the 2018 DHMI Annual Report, 8 PSR (Primary Surveillance Radar), 25 SSR (Secondary Surveillance Radar) and 13 ADS-B (Automatic Dependent Surveillance-Broadcast) systems have been serving in Turkey's airspace as of the end of 2018. As a result of the installation of an on-mounted PSR/Mode-S SSR system at Istanbul Airport and a stand-alone Mode-S SSR system for Muğla, Dalaman Airport, the number of PSRs and SSRs in service has increased.

In order to renew the Dalaman SSR System that has completed its economic life, and to establish 1 PSR/SSR System at Istanbul New Airport, Spanish INDRA Sistemas S.A. and DHMI

signed the "Renewal of Dalaman SSR System and PSR/Mode-S SSR System Supply and Installation Contract" on December 8, 2016. Within the scope of the contract, the provisional acceptance of Istanbul Airport PSR/Mode-S SSR System was made on December 3, 2018, and the provisional acceptance of the Dalaman Mode-S SSR System on February 7, 2019. Both systems have been activated.

MGR/PSR Technical Features

- S-Band solid state pulse Doppler radar
- Coherent signal processing
- Pulse compression (Nonlinear FM)
- PRI/PRF Staggering
- Frequency Staggering
- Doppler filter banks and MTI
- Weather channel with

6 levels of precipitation reporting

- Antenna beam (modified cosecant squared 45° vertical (low and high beam), 1,45° horizontal)
- Circular and linear polarization
- Antenna rotation speed ≥ 12 rpm
- Max. Range: 60 nmi
- Range resolution < 200 m
- Power ≥ 18 k W peak
- PRF: staggered PRF (830 Hz average)
- Doppler processing: > 4 bank Doppler filtering
- Target tracking speed interval 60-300 m/s
- Maximum number of targets 1,000
- Weather channel resolution 1,4°-0,95 nmi / 6 levels rain information
- Interface PPI console
- System interface EUROCONTROL ASTERIX CAT240 video, CAT34 service messages, ASTERIX CAT48 plot/track



Dubai Airshow 2019 Crowded but Ineffectual!



by Muhammed Yilmaz

Dubai Airshow gathered the global aviation industry at the center of the Middle East for the 16th time. During the event the organization failed to satisfy expectations, the manufacturers received a total of US\$ 54.5 billion in aircraft orders, the majority of which belongs to the Emirates, as a host!

Dubai Airshow, which was held in 1989 for the first time with 200 participating companies and 25 aircraft on static display area and supported with regional investments both for commercial and military aviation, has grown over time and become one of the most important aviation organizations in the world. The fair, which opened its doors to visitors for the 16th time on November 17, 2019, was recorded as the largest organization in terms of participation. Nearly 1,300 companies attended the fair this year and 161 civilian and military aircraft were displayed on static area. The total number of visitors was announced as 84,043. However, the fair fell short of expectations in terms of overall effectiveness.

The fact that only 2

aircraft orders were received on the first day of the fair that was launched with great expectations made the sector upset. On the first day, Biman Bangladesh Airlines ordered the U.S. manufacturer Boeing two Boeing 787-9 Dreamliners with a list price of US\$ 585 million.

It is possible to comprehend the status of 2019 clearly by looking at the order figures on the first day of the previous two fairs. On the first day of the Dubai Air Show in 2017, US\$ 15.1 billion in orders had been received and on the first day of the fair in 2013, an all-time record had been broken with an order amount of US\$ 192 billion.

The giant aviation fair, which is the flagship of the Middle East, is famous for its record-breaking agreements;

however, it is possible to interpret this year's event as a clear indication of the challenges faced by the global aviation industry.

For rich Gulf countries and state-owned airlines, the times when large order numbers were announced seem to have gone for good under conditions of low demand and high supply, and due to the depressed oil prices. Economists believe that reasons such as the US-China trade war and the uncertainty created by Brexit for investors brought a slowdown in trade and growth.

One of the most important reasons for the stagnation in the sector is the crisis environment that emerged due to the Boeing 737MAX crashes within 5 months, killing 346 people. It is uncertain when the plane will fly again, and airline companies are waiting

to hear from Boeing in order to take action. The extension of the process creates an unfavorable atmosphere for the sector.

On the second day, Emirates cleared the air and emerged due to the shock effect of only having 2 orders on the first day of the fair. Dubai's Emirates ordered a total of 50 A350-900 from European manufacturer Airbus, with a list price of US\$ 16 billion. This decision means that 39 of A380 orders, the manufacture of which will be completed in 2021, have been changed as 50 A350s. The first A350 will be delivered in May 2023, and all 50 aircraft will join the fleet by 2028.

On the fourth day of the fair, again, Emirates ordered 30 Boeing 787-9 Dreamliners with a list price of US\$ 8.8 billion, like the captain saving his ship and prevented

the fair from closing with the lowest order figures in history.

30 orders issued to Boeing are also a result of delays in 777X delivery. Even though 30 777X orders have been changed into 787 Dreamliners, Emirates still remains the largest 777X customer in the world with the remaining 120 orders. Dreamliner deliveries are planned to start by 2023, just like the Airbus A350s.

The orders placed during the Dubai Airshow will create a completely new fleet dynamic for Emirates, which includes only Airbus A380 and Boeing 777 in its fleet. There will be four types of aircraft in the fleet. Both the A350 and 787 will also have the new Premium economy cabin, which is planned to be introduced by the airline in 2020.

One of the important actions that increased the reputation of the fair came from Air Arabia, which can be considered as another host. The Sharjah-based low-cost airline ordered 120 A320neo family aircraft from European manufacturer Airbus during the fair. 73 of these orders were given for the A320neo, 27 for the A321neo and 20 for the longest-range version, the A321XLR. Only this order package was enough to make Airbus the most profitable company at the fair.



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Participation from Turkey

Aventure Aviation, Cornea, Roketsan, Turkish Cabin Industry (TCI) Turkish Seat Industry (TSI) and Turkish Technic attended the fair from Turkey. Turkish Defense industry companies, especially Turkish Aerospace and Aselsan, did not attend the Dubai Airshow due to the Defense Fair held in Bangkok on the same date as the Dubai Airshow.

One of the most surprising attempts during the fair came from SunExpress. The airline, a partnership of Turkish Airlines and Lufthansa, attracted attention by placing 10 Boeing 737 MAX orders, the total list price of which was US\$ 1.2 billion.

During the Dubai Air Show 2019, the total order figure was recorded as US\$ 54.5 billion, including Emirates' orders of US\$ 24.8 billion

for Boeing and Airbus. This figure was less than half of the order figure announced only for the closing day of the previous organization.

At the static area of the fair, visitors had the opportunity to see various civilian aircraft

such as Airbus A330neo, A220, A380, Boeing 787-9, Embraer E195-E2, as well as military aircraft such as F-35, F-22, F-15, Rafale and Mirage-2000.

The next Dubai Airshow will be held on November 14-18, 2021.



© Aviation Turkey

Cem Akalın, Muhammed Yılmaz and Can Erel were at Dubai Airshow

Business Class Experience with Emirates

I have experienced very enjoyable trips to attend the Dubai Airshow in Emirates Boeing 777-300 business class from Istanbul (IST) to Dubai (DXB) and then back to Istanbul (IST).

Emirates First Class and Business Class passengers can take advantage of both the IGA Lounge and Fast Track services at Istanbul Airport. For Istanbul-Dubai flight number EK124, after arriving at Istanbul Airport about 3 hours before the flight and checking my luggage at the check-in counter, I had some rest at the IGA Lounge in order to destress before the flight.

After taking my seat, 8A in the Business Class cabin of the Boeing 777-300, I realized that an extremely pleasant journey awaited me thanks to the welcoming champagne offered to me by the cabin supervisor, who had thought of almost everything for an enjoyable and comfortable trip.

We were ready for the flight with snacks offered before the flight, and detailed information about the flight was provided and an interesting safety demo. After a taxi on the runway, we started our journey and left Istanbul



under the rain-bearing clouds.

From that moment, another new and wonderful presentation began. When the menu boards were delivered, the menu with a wide variety of foods made me feel that I was at a luxurious restaurant and I was flying at an altitude of 36 thousand feet. Apart from the beverage menu, a separate wine list, including a brief description from the sommelier about the

grapes used for the hand selected wines was also delivered, which was an elegant detail.

The availability of Turkish appetizers on the menu and the traditional tastes of Turkish cuisine such as eggplant with minced chicken were among the main dishes with options that were concrete evidence that the airline made every effort to increase service quality and satisfaction, by taking into account

passenger profiles in the menu selection. The menu was enriched with delicate details such as dessert, a fruit platter and decadent chocolate.

I thoroughly enjoyed the high level of comfort that the seats provided as are able to turn into full-flat beds, also an amenity kit consisting of quality products was provided, and an in-flight entertainment system with a wide variety content was available.



The courteous service continued with other special details combined with the sumptuous taste of the meal. The in-cabin lighting system that illuminates a starry night atmosphere in the cabin while the passengers were resting, and sleeping was proof that all nuances were considered for the comfort of the passengers. Emirates is a global airline that employs many Turkish pilots and cabin crews. As per the company policy, Emirates makes an effort to provide a cabin attendant who is a citizen of the country of departure on its flights. This is both a thoughtful detail for passengers to express themselves and to feel more relaxed communicating when needed, and it is undoubtedly a smart move that makes it easier to understand the necessary announcements onboard. On both of my flights there was a Turkish cabin crew member, including a senior cabin supervisor who has been with Emirates for 22 years on my departing flight and there was a cabin attendant who recently took office on my returning flight. I have to say that they represent Turkey very well and are very successful and competent in their work.

After a pleasant journey of about 4 hours and 15 minutes, I exited the 777 which landed in Dubai and



© Aviation Turkey

started walking through the spacious corridors of Dubai Airport. I was excited to experience another service element that is provided by Emirates, which aims to offer travel comfort to its passengers not only on the aircraft and in the sky, but also in the city.

After I received my luggage following the passport check, I followed the signs in the airport and reached the center of the Emirates Chauffeur Drive, which Emirates offers to First and Business Class passengers. The time between giving my boarding pass to the staff at the service counter, waiting for the procedures to be completed and getting on the road was shorter than I could have imagined.

In order to use the Emirates private chauffeur service, after completing your flight reservation, you must make a reservation by entering your address with your PNR number, the address you will arrive to from the airport after landing, and your departing address for your return trip. You are given a lift by luxury vehicles to your destination and you are transported to the airport by considering the distance of the address you give to the airport and traffic conditions. So, you are able to indulge in the comfort of Emirates in a way that also covers your airport transportation as well.

Your private driver, who takes you to the airport for your return flight, leaves you at a different gate than the ones for

other passengers at the airport. At the counters which are very close to the gate where you enter the terminal, you take your boarding pass and check your luggage. Thus, if you want to shop at the airport, you do not need to carry your luggage. Then, you can quickly access the Emirates First Class and Business Class lounges and unwind before your journey. You can also go to the plane without experiencing the stress of boarding lines by using the special gates that open directly to your plane from the lounge.

Emirates Airlines, based in Dubai, organizes 18 reciprocal flights per a week between Istanbul and Dubai, 11 of which are from/to Istanbul Airport and 7 of which are from/to Sabiha Gökçen Airport ➔

Istanbul Sabiha Gökçen

“The Best Airport of the Year”

Istanbul Sabiha Gokcen International Airport (ISG) was selected as the “Best Airport of the Year” by CAPA, one of the world's leading aviation organizations.

ISG was awarded with the “Best Airport of the Year” thanks to its great contributions to the aviation sector on a global scale and having served over 30 million passengers during the year.

The achievements of Istanbul Sabiha Gokcen International Airport – Turkey's second largest airport – were deemed worthy of many national and international awards. Approaching the end of 2019, ISG was awarded by the Aviation Awards for Excellence, which has been given by the Center for Asia Pacific Aviation (CAPA) since 2002. At the Aviation Awards for Excellence, ISG was selected as the “Best Airport of the Year” with

its global contributions to the aviation industry and over 30 million passengers throughout the year. The Aviation Awards for Excellence were given in 10 different categories which were determined by an independent international jury. Istanbul Sabiha Gökçen Airport was deemed worthy of an award by being selected among airports that served 30 million passengers and above.

Göral: “We will play an important role in making Istanbul one of the world's mega aviation centers”

At the award ceremony held at the CAPA World Aviation Summit in Malta, ISG's CEO Ersel Göral received the award from the CAPA Chairman Emeritus Peter Harbison. In his speech at the award ceremony, Göral said, “We

are honored to receive this valuable award by CAPA, which recognizes the extraordinary growth story of ISG. It is also important for us that this award coincides with the 10th year of our terminal building, which has served more than 200 million passengers so far, and which has increased more than 6 times during that time. Today, as Turkey's 2nd and Europe's 12th busiest airport, we currently serve more than 35 million



passengers per year. Located 40 kilometers from the city center, ISG has become the city airport of Istanbul after the opening of Istanbul Airport and the closing of Ataturk Airport. Following the completion of access roads and the metro line, the launch of the second runway and a new terminal building within next year, we will play an important role in making Turkey and Istanbul one of the world's mega aviation hubs."

ISG was selected as the "Airport of the Year" at the CAPA Aviation Awards for Excellence in 2014 in the 15-25 million-passenger category, and "The World's Best Airport" by the World Low Cost Airlines Congress in 2010. This year, ISG won first place in the "Airports" category of the A.L.F.A Awards, where brands offering the best customer experience were awarded, and received the Business Support Services Award of the Year given by Fortune Magazine, one of the world's leading multinational business publications.



Havaş Employees Becomes Mobile with APPRON

Havaş, one of the most significant brands in Turkey, puts APPRON, the in-house communication platform developed for Havaş employees, into operation. The APPRON application is the first application in its field in the ground handling services sector which enables employees to easily carry out their personal transactions such as payroll, leave, transfer requests, etc., while also swiftly accessing events, announcements and news.

Havaş guides the sector in Turkey with its innovation investments and has begun using the APPRON application with the goal to enhance in-house communication and gather over 4,000 employees on a single platform. APPRON is the first corporate mobile application in the sector and Havaş employees can immediately access all the information they may require during work processes from their mobile phones with one click. Information such as including vacation requests, leaves, payment advances, payroll information, transfer transactions, reports on related teams with the



administrator screen, work schedules, events, announcements and news are readily available to employees. With a user-friendly interface, the application enables employees to access their personalized data from outside the office.

Havaş General Manager Kürşad Koçak stated, "We are more than happy to achieve a first in our sector with APPRON, a new mobile application developed for our employees to swiftly and easily carry out their work processes. Moreover, I believe, we have included another dimension to the in-house communication approach in the ground handling services sector. With the APPRON application, all Havaş employees will be able to access up to date personalized data from

their mobile phones, and in the meantime, follow up on company-related announcements and news with push notifications. The application was well-liked by our employees".

With the APPRON application information on vacation requests, leaves, payment advances, payroll, transfer requests are readily available. Team leaders can also access reports and statistics on their teams from the administrator screen. Contact lists, reminders for birthdays and special days, personal work schedule, events, announcements and recent news can be accessed via the application as well. APPRON is now available for both iOS and Android operated mobile phones of Havaş employees.



13th Brussels Airport Aviation Awards

Brussels Airport Company continues its annual tradition of presenting the Brussels Airport Aviation Awards. The airport bestows these awards to honor those airlines and partners that have distinguished themselves during the preceding year in terms of network and cargo development, environment and safety, and punctuality and performance.

The Network Development Awards go to airlines that have launched new routes or achieved significant growth in passenger or cargo volumes.

Turkish Cargo was awarded in the category of Network Development Award Cargo Airline.

Turkish Cargo enjoyed considerable growth this past year at Brussel Airport. Last year, Turkish Cargo replaced the weekly flight to Istanbul with an A300 with three A330 flights per week. The other airlines nominated in this category were Avianca Cargo and Sichuan Cargo.

Fraport TAV Antalya Airport Hosts Connect 2020

“Antalya is more than Summer”

The Connect Route Development Forum 2020 is not only an event for the aviation industry to come together and discuss new partnerships, but it's also a fantastic opportunity for attendees to experience the very best of what Turkey has to offer. This year's event is set in the wonderful surroundings of Antalya and hosted by Fraport TAV Antalya Airport. It is a unique chance to showcase Antalya as a destination in winter as well and supports the Fraport TAV

Antalya Airport campaign “Antalya is more than Summer”. Deniz Varol and Bilgihan Yilmaz, General Manager, Fraport TAV Antalya Airport made the opening a speeches and welcome participants from different nations.

Connect 2020 event brings together 614 aviation decision makers including more than 70 airlines and 205 represented airports from 55 countries to discuss current and future air transport links. This year's event hit a record in terms of airline participation.



Qatar Airways Increased its Holding in International Airlines Group

Qatar Airways Group increased its holding to %25,1 in International Airlines Group (IAG) which owns British Airways and Iberia, Aer Lingus, Level & Vueling. Qatar previously held %21,4 of IAG. In January 2020, IAG removed its limit of non-EU shareholding, as non-EU persons held 39,5%, as the

company announced on January 17.

“Qatar Airways continues to consider opportunities to invest in airlines and support management teams that share our vision to enhance travel opportunities for airline passengers across the globe.” said Qatar Airways CEO Mr Al Baker.

Atlas Global's Time in the Sky Ends

One of Turkey's airline companies Atlas Global Airlines cancelled all flights on February 12, 2020. The carrier had previously suspended European flights and reduced domestic flight operations temporarily on November 28, 2019 due to financial problems. AtlasGlobal restarted its suspended flights again to Antalya, London, Baghdad, Tel-Aviv, Tehran and Amsterdam on December 21, 2019. With the declaration of the Directorate General of Civil Aviation on social media accounts on February 12, 2020 'airlines filed for bankruptcy due to their failure to continue their operations and flights' - Atlas Global officially left the skies. The last flight was operated from Istanbul to Baghdad.

Atlas Global had been operating since 2001, had flown to 27 other destinations, including London, Paris, France, Germany and destinations across the Middle East and Russia. It operated a fleet of 18 aircraft, 13 of which are the A321-200, along with three A320s, one A319 and one widebody A330.



NEWS

International Flights with Anadolu Jet

Turkish Airlines' AnadoluJet brand goes global on March 29 with its new international flights from Istanbul Sabiha Gökçen Airport. Since its foundation back in 2008, AnadoluJet has been carrying over 100 million passengers via airports of Turkey and now it is set to carry its service quality abroad with its new flight network.

Operating its flights with Turkish Airlines' 87 years of experience, AnadoluJet will add international flights covering 26 destinations in 16 countries to its routes in Turkey according to the new planning. With its fleet set to reach 57 aircraft in total, the brand will continue the flight satisfaction provided by Turkish Airlines to its new flights. With its whole operational processes such as ground services and technical maintenance covered with the assurance of Turkish Airlines, international flights will also put comfort at the forefront.

Sharing his views on the new plans, Turkish Airlines Chairman of the Board and the Executive Committee, M. İlker Aycı stated; "To this day, we've carried millions of passengers to the four corners of the world with our brand Turkish Airlines. From March 29 on, AnadoluJet

will continue the example of Turkish Airlines and will open its doors to the world, allowing us to carry more passengers with Turkish hospitality. We wish to make AnadoluJet the airline that becomes the meeting point of the world just as its namesake Anatolia, the land that was and is the connecting point of numerous civilizations throughout history. I believe that after connecting Anatolia from one corner to another, AnadoluJet will successfully connect cities of the world with its affordable flights."

With its aircraft that consist of solely economy class, AnadoluJet will increase passenger capacity by 22% and will offer its services to more passengers at a lower cost. With this new strategy, the number of additional seats offered will be 1.2 million. New flight planning will offer 30% better connectivity for domestic and international flights. AnadoluJet is now waiting to offer its unparalleled domestic service provided with Turkish Airlines' experienced cabin and cockpit crew to its passengers travelling abroad. Starting on March 29, tickets for the new flights are available via AnadoluJet and Turkish Airlines sales channels.

Award-Winning Frigorific Vehicle Project of Qatar Cargo Supported by Havaş

Qatar Airways Cargo received the Jury Special Award for the "Frigorific Vehicle at the Apron for Cold Chain" project developed by Havaş, one of the leading companies in the industry and supporting cargo operations of Qatar Cargo, at the Atlas Logistics Awards which is closely followed by the logistics industry.

Qatar Cargo, one of the collaborations of Havaş in warehouse services, which integrates the latest technology and equipment into its services with its innovation investments, was deemed worthy of the jury special award at the Atlas Logistics Awards with the frigorific vehicle project launched by Havaş last year. Within the scope of the awards that are closely followed by the logistics sector and the business world, winners were selected among 83 candidates in 5 categories and were given for the 10th year this year during the Logitrans International Transport Logistics Fair.

Havaş General Manager Kürşad Koçak said, "As Havaş, we contribute to the development of the industry in all areas in which we perform activities and we focus on raising the bar higher with our collaborations by integrating the latest technologies into our services. In this direction, we are pleased that the frigorific vehicle project, which we developed in 2018 and launched for the first time in the operations of Qatar Cargo, one of our

long-term collaborations, was deemed worthy of an award. Our vehicles with refrigeration units have been developed in order to maintain the cold chain in the transfers of air cargo subject to customs such as medicine, food from the apron. We will continue our investments regarding innovation by breaking ground in the air cargo sector."

Operating at its warehouses at Istanbul Airport, located on an area of approximately 14 thousand square meters, as well as its warehouses at Izmir Adnan Menderes and Ankara Esenboğa Airports, Havaş hosts the general cargo, valuable cargo, refrigeration-requiring cargo, and cargo containing hazardous material and radioactive material, and undertakes the management of import and export cargo. In addition, Havaş also provides inquiry service with 'the Airway Bill Inquiry' function under the warehouse services menu on Havaş Mobile application and under the online transactions on havas.net, in order to enable import cargo customers to access storage fees more easily.



Mr. Salvatore Sciacchitano of Italy Elected President of the ICAO Council

November 26, 2019, the 36-member governing body of the International Civil Aviation Organization (ICAO), the ICAO Council, has elected Mr. Salvatore Sciacchitano of Italy as its President for a three-year term, beginning 1 January 2020.

He succeeds Dr. Olumuyiwa Benard Aliu of Nigeria, who has held the position for two consecutive terms since 2014.

Who is Mr. Salvatore Sciacchitano?

Mr. Sciacchitano's candidacy had been endorsed by the 44 General Directors of the European Civil Aviation Conference. His election follows an accomplished 39-year career in aviation, during which he served inter alia as General Director of the Italian Airworthiness Authority

(RAI), as Deputy General Director of the Italian Civil Aviation Authority (ENAC), and many other international positions including as Executive Secretary of the European Civil Aviation Conference (ECAC; 2010–2018).

He has also participated in several ICAO Assemblies as Chief or Alternate Chief of the Italian Delegation to the ICAO, as well as the Chief Delegate of ECAC. He had also recently been appointed to the Italian Delegation of the ICAO Council.

Mr. Sciacchitano is fluent in English, French and Italian. He graduated as a Master in telecommunication engineering "cum laude" from the University of Catania and has an extensive educational background in both aviation and management.

Bell Teams Up with Sumitomo Corporation and Japan Airlines to Explore Air Mobility

Bringing together a comprehensive set of partners with complementary capabilities to unlock the future of transport

Bell Textron Inc., a Textron Inc. (NYSE: TXT) company, announced a signed memorandum of understanding today with Sumitomo Corporation and Japan Airlines Co., Ltd., to explore Mobility-as-a-Service (MaaS) and to foster the required infrastructure and regulatory environment. This collaboration will inform the development of an on-demand air mobility ecosystem utilizing Bell's air mobility solutions including Bell's Air Taxi, the Nexus 4EX, in Japan.

"We are excited to take this substantial step to bring together an international airline, a major infrastructure provider, and a VTOL OEM to work collaboratively on a more connected mobility future," said Bell's Scott Drennan, Vice President of Innovation. "While we are known for our 80 years of creating vertical lift aircraft that move people, goods, and data, we also want to help shape the operational infrastructure in which they will live."

Sumitomo is a 100-year-old global enterprise based in Japan focused



on enriching lives and the world. Sumitomo is working to leverage their broad business portfolio spanning metal products, transportation & construction systems, infrastructure, media & digital, living related & real estate, and mineral resources, energy, and chemicals to support the development of the necessary infrastructure and business use cases for air mobility. "We have been inspired by Bell's vision and their capability of penetrating into this urban air mobility market," said Eiji Ishida, Sumitomo's Executive Officer of Lease, Ship & Aerospace

Business Division. "All three companies bring a unique perspective, and we are excited to work together toward this new future."

Japan Airlines (JAL) is a globally respected, international airline delivering Japanese hospitality worldwide by conducting numerous operations centering on the air transport business and improving customer's convenience. Tomohiro Nishihata, Japan Airlines' Managing Executive Officer of Innovation stated, "Japan Airlines is eager to explore the future of air travel beyond its

existing framework, and we believe this is the right team to set the standard in Japan for future cities to implement urban air mobility systems."

Together, these companies will develop policy and planning recommendations, identify entry into service use cases and pilot programs, and develop infrastructure requirements that integrate into both current and future transportation systems and city standards to provide safe, accessible and sustainable multi-modal transportation system to our communities.

Qatar Airways Welcomes its One Millionth Passenger

Qatar Airways which has been selected as “The Best Airline in the World” 5 times and Istanbul Sabiha Gökçen International Airport (ISG) held a special surprise greeting ceremony for its millionth passenger on Tuesday, December 10th. İrem Şeker, landed at ISG with her husband traveling in via Doha, and was greeted with applause when she got off the plane and was informed that she was the millionth passenger flying with Qatar Airways to Sabiha Gökçen International Airport. A round-trip ticket from ISG to Doha was given as a gift to the married couple by Ferit Aksun, Qatar Airways Country Manager Eastern Europe South. Other passengers on the plane were also welcomed with traditional Turkish delights and refreshments.

Ferit Aksun, Qatar Airways Country Manager Eastern Europe South: “Qatar Airways is happy to celebrate our fifth anniversary of operating from Sabiha Gökçen Airport, as well as welcoming our one millionth passenger. We have further strengthened our commitment to the Turkish market this year by opening a route to Izmir and we hope to continue our growing relationship in the upcoming years.”

Ersel Goral, ISG CEO: “We are proud of our partnership with Qatar Airways and serving our passengers through our airport and facilities. We have come a long way since we started this journey with Qatar Airways 5 years ago. Qatar Airways’ presence here has supported us in achieving further growth



as well as strengthened ISG’s position as one of the major airports in Europe. In the upcoming years, we hope that this partnership will continue to bring further success to both Qatar Airways and ISG. Qatar Airways’ strong network and high service quality together with ISG’s superior terminal facilities will provide great advantages to our passengers.”

The cake cutting ceremony was held after the speeches and Qatar

Airways and ISG officials exchanged gifts.

In Turkey, Qatar Airways with its flights from/to Istanbul Airport, Istanbul Sabiha Gökçen Airport, Ankara Esenboğa Airport, Izmir Adnan Menderes Airport, Adana Airport and seasonally from/to Bodrum and Antalya Airports, connects many destinations from Turkey to the world. Qatar Airways will start flying to/from Trabzon as of May 20, 2020 and will increase its number of routes to 8 in Turkey.

HANKOK Meeting Held in Antalya

The 146th Air Transportation Facilitating Committee (HANKOK) meeting was held at Antalya Akra Hotel on December 12, 2019, with the sponsorship of Fraport TAV Antalya Airport.

In the meeting attended by representatives of

relevant institutions and organizations, the International Civil Aviation Organization’s (ICAO) 40th General Assembly Resolutions were shared, and several issues such as the problems and solutions in services provided to disabled or mobility-



restricted passengers, regulations on the rights of passengers traveling

by air, and investigation of wild animal issues at airports were discussed.

Seamless Air Alliance Announces World's First Inflight Connectivity Standard

Developed in collaboration with industry experts across Seamless Air Alliance's member companies, Seamless Release 1.0 establishes the world's only Modular Platform Architecture for inflight connectivity. By using a modular structure based on open interfaces, the system enables rapid adoption of new technologies without requiring customization or the complete replacement of equipment on the aircraft or fleet.

The standard – Seamless Release 1.0 – enables long-term technical flexibility for airlines, provides a secure and easy-to-access service for passengers, and opens the door to seamless roaming with mobile network operators.

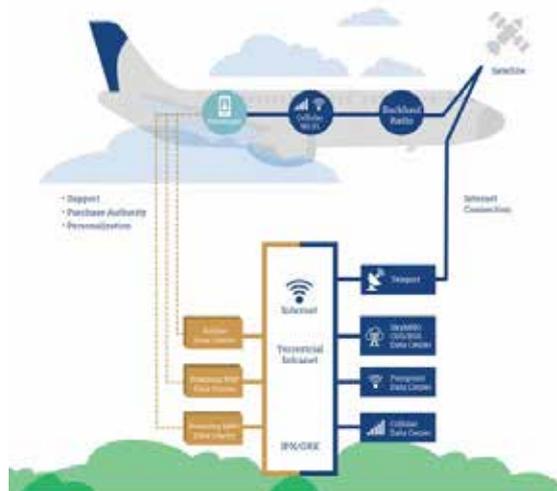
"Passenger demands for inflight connectivity are still ahead of the performance of systems putting increasing pressure on airlines to find a way to meet these expectations and gain passenger loyalty," said Jack Mandala, Seamless Air Alliance CEO. "Seamless Release 1.0 changes the game by enabling airlines to take advantage of new

capacity and innovations faster and more cost-effectively than ever before."

Seamless Release 1.0 includes a comprehensive set of unique, testable, requirements for airlines to use when developing sourcing requests. In addition to saving the airline time and money to develop these requirements, standards eliminate the risk of trying to predict how future developments will impact their choice of systems.

Mark Cheyney, IFEC Development Manager at Virgin Atlantic, said: "Meeting increasing expectations for connectivity in the skies is fast becoming a driving factor in airline preference. Virgin Atlantic and the Seamless Air Alliance believe that standardization will allow airlines to be more empowered and more in control of their connectivity service offerings, allowing them to meet their customers' expectations."

Sherif Bakir, CEO of Vodafone Roaming Services, added: "While inflight connectivity is already available today, the experience of



customers varies from one airline to another in terms of things like simplicity and data speeds. With rising consumer connectivity needs, this new standard is a promising first step towards a much improved and consistent inflight customer experience."

Additional details of Seamless Release 1.0 are available in a newly published technology brief, titled Seamless Air Alliance Introduction to SR1 – A New Era of Inflight Connectivity.

The publication of the standard, which is available for any Seamless Air Alliance member to view in full, enables airlines and mobile operators to

easily deploy, integrate and operate on-board networks by having a choice of different suppliers and open interfaces from where they can source modular parts, subsystems and software. This design means multi-supplier IFEC systems can be built quickly to support future technology upgrades that do not require customizations.

The Seamless Air Alliance is an open, international collaboration of airlines, technology leaders, and suppliers formed to improve the way airlines build out connectivity to support continuous innovation and allow rapid upscaling in the market.

A330-800 Receives Joint EASA and FAA Type Certification

The A330-800 has received joint Type Certification from the European Aviation Safety Agency (EASA) and the Federal Aviation Administration (FAA). The aircraft's certification flight-test campaign was successfully performed by aircraft MSN1888, which completed the program in 370 flight test hours and 132 flights since its first flight in November 2018. The A330-800, part of a true new-generation A330neo family, is the most efficient longest range entry-level widebody and incorporates new Rolls-Royce Trent 7000 engines, a new 3D-optimized wing and new Sharklets using lighter composite materials. Together, these advances bring a significant reduction in fuel consumption of 25 per cent compared with older generation competitor aircraft of similar size. Certified initially with a maximum take-off weight (MTOW) of 242 tonnes for a range capability of up to 7,500 nautical miles, the A330-800 will typically seat 220 to 260 passengers in three classes, or up to 406 travelers in a single-class high-density configuration. To date the A330neo Family has won 337 firm orders from

22 operators. In the A330-800, passengers can expect the highest levels of comfort, with the aircraft featuring the award-winning Airspace by Airbus cabin with larger overhead storage, advanced cabin mood lighting and the latest in-flight entertainment and connectivity. Operationally, the A330neo shares a common pilot type-rating with the larger A350 XWB, which facilitates minimum flight training cost and maximum pilot productivity. Maintenance personnel will also benefit from the aircraft's new Skywise data connectivity features which will help them to predict potential issues before they arise, thus ensuring maximum productivity of the aircraft in revenue service. The A330 is the most popular widebody family ever, operating over one million flights every year. It has received over 1,800 orders from 120 customers with 1,400 A330s currently in operation today. The A330neo is the latest addition to the leading Airbus widebody Family, which also includes the A350 XWB, featuring unmatched space and comfort combined with unprecedented efficiency levels and unrivalled range capability.



The G700 Brings the Best in the Business Together

Gulfstream Aerospace Corp., a wholly owned subsidiary of General Dynamics, announced the all-new Gulfstream G700™ made its first flight on 15 February, 2020, demonstrating the program's maturity and officially launching the rigorous flight-test program of the most spacious jet in the industry with the longest range at the fastest speeds.

The G700 departed Savannah/Hilton Head International Airport at 1:19 p.m. and landed 2 hours and 32 minutes later. The aircraft made the flight on a 30/70 blend of sustainable aviation fuel. "The G700's first flight is a momentous occasion and the next step forward in Gulfstream's vision for the future, a vision that has been guided by the strategic leadership of our parent company, General Dynamics, and the innovation of the Gulfstream team," said Mark Burns president, Gulfstream. "As the market leader, Gulfstream is moving the entire business-jet industry forward with advanced safety features, tomorrow's technology and a cabin purposefully designed to exceed our customers' expectations for comfort." The G700 was introduced as the new industry flagship in October 2019 with a full-scale cabin mock-up and an aircraft taxiing under its own power.



The program includes five already manufactured flight-test aircraft and a structural test article that has completed load testing. The G700 features the longest, widest and tallest cabin in the industry with 20 Gulfstream panoramic oval windows and up to five living areas. The aircraft introduces many all-new interior differentiators, including an ultragalley with more than 10 feet of counter space and a crew compartment or passenger lounge; the industry's only ultra-high-definition circadian lighting system; speakerless surround sound; and a master suite with shower. The G700 is powered by Rolls-Royce Pearl 700 engines and refined with Gulfstream-designed aerodynamics and an all-new winglet. The aircraft can fly at its high-speed cruise of Mach 0.90 for 6,400 nautical miles/11,853 kilometers or at its long-range cruise of Mach 0.85 for 7,500 nm/13,890 km. The G700 also includes the Gulfstream Symmetry Flight Deck™ with the industry's only electronically linked active control sidesticks, the most extensive use of touchscreen technology in business aviation and Gulfstream's award-winning Predictive Landing Performance System.

"The G700 brings the best in the business together – the innovation of the G500 and G600 Symmetry Flight Deck and the legendary performance of the G650ER – and we are excited to deliver this exceptional aircraft to our customers," said Burns.



AVIAA and LOFT Partner on Citation & CJ Training Offering



AVIAA, the expanding group purchasing organization for business aviation, has added LOFT as another strategic partner for its membership. For the past 15 years, LOFT has provided experienced flight instruction to Cessna Citation and CJ pilots through the entire training process. Its unique Part 142 simulator training program, based in Carlsbad, California, will now be offered to the growing number of AVIAA members operating Citation C Series business jets.

"As our community grows, we understand the importance of offering our members training partners that have the ability to deliver the highest level of training and adapt to an operation's specific and ever-changing needs," said Matthew Smith, AVIAA Chief Business Development Officer. "LOFT is a natural partner to add to our portfolio with its track record of experienced simulator pilot training, as well as the significant number of AVIAA members operating

the Citation jet. Insurance and crew training are critical operational pillars where AVIAA delivers economies of scale to members."

LOFT recently added a new Cessna 560 Level D simulator at its location in Southern California. Offering a wide variety of training courses as well as scheduling options, LOFT flight instructors are career aviators and professional pilots.

"We pride ourselves on specialized CJ and Citation initial and recurrent training at LOFT and partnering with AVIAA will allow us to offer its members pilot instruction in a relaxed and professional environment," said Collin Yantos, LOFT Marketing Director. "All of our courses are taught with a proprietary curriculum and state-of-the-art technology to ensure the best training experience for pilots whether they are seeking initial type ratings, ATP certificates, SIC training, or insurance-approved recurrent training."



DHL Express Upgrades its Fleet with Six New Boeing 777 Freighters This Year

February 24, 2020, DHL Express, the world's leading international express service provider, is receiving six new Boeing 777F-200 cargo aircraft this year. The first of these planes to come in 2020 landed last Thursday at its future base of operations, the Cincinnati/Northern Kentucky International Airport (CVG). In 2018 DHL ordered 14 new Boeing 777F, with four delivered in 2019, six to come this year and the remaining four to be taken into service in 2021. The current freighter will be operated by DHL Express' partner airline Kalitta. The renewal is part of the overall modernization of the long-haul intercontinental fleet of the courier company and replaces older planes. The Boeing 777F is equipped with top-of-

the-line fuel-efficient technology and features the longest range at full payload of any widebody freighter aircraft. This allows DHL to operate with higher efficiency while meeting the increasing global demand for express logistics service.

"We're excited to welcome more Boeing 777Fs to the DHL Express family this year," says John Pearson, CEO of DHL Express. "With the modernization of our intercontinental fleet, we can simultaneously enhance our proven ability to meet growing demand, improve our environmental footprint and deliver best quality service to our customers. DHL has made its mark time and time again with innovative solutions and technologies. We

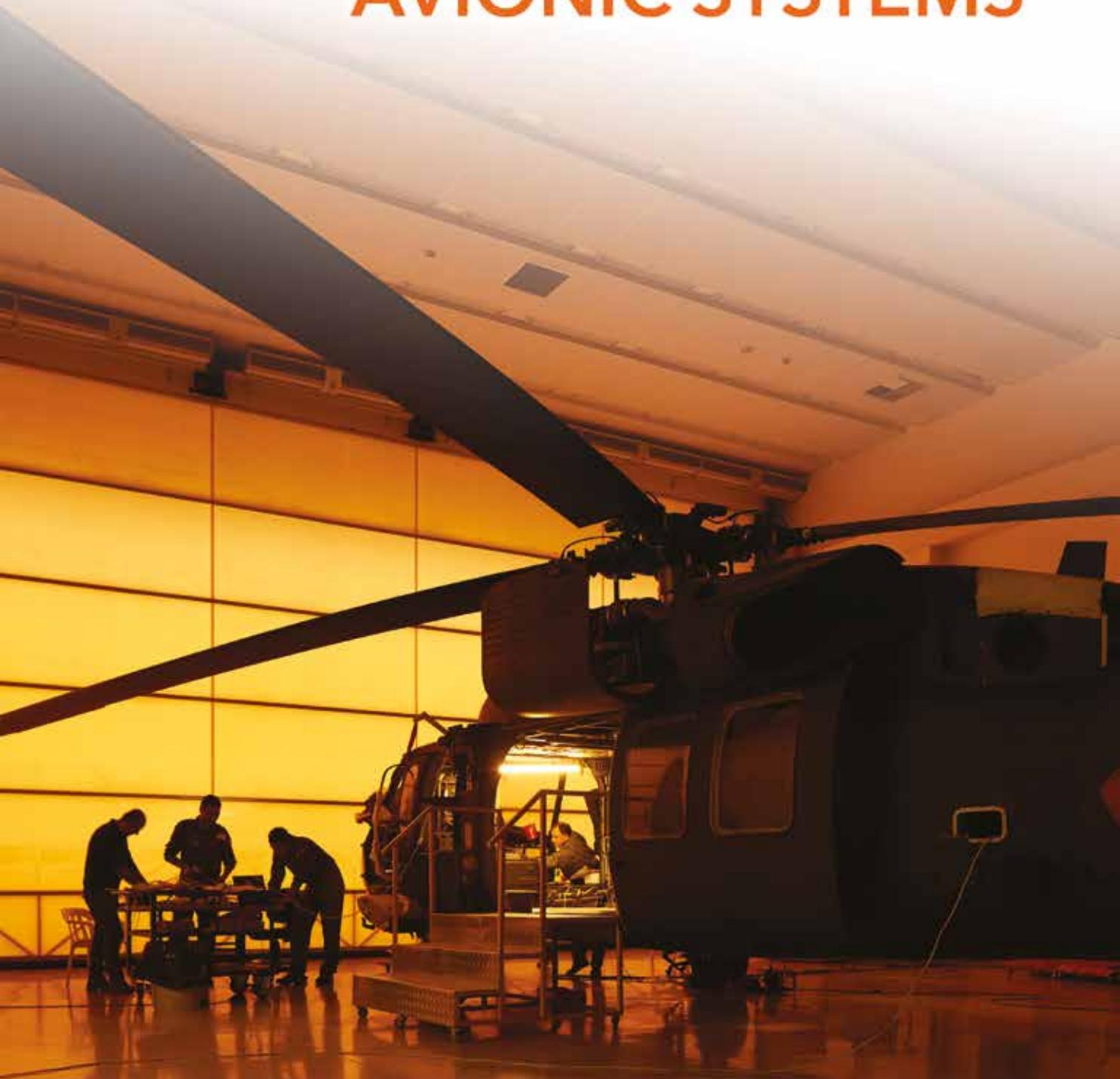
are pleased to continue demonstrating to partners and customers alike how these advancements stand to elevate the entire express logistics industry while bringing us closer to achieving our Strategy 2025 goals."

In the center of its Strategy 2025 DHL Express focusses particularly on 'E-commerce' as a growth driver and 'efficiency' for further increasing its profit. With a payload capacity of 102 tons and a range of 9,200 km, the B777F has the largest capacity and range of all twin-engine freighter aircraft. They are also more fuel-efficient, reliable and reducing CO2 emissions by 18 per cent. DHL Express operates over 260 dedicated aircraft

with 17 partner airlines on over 3,000 daily flights across 220 countries and territories.

"We expect further growth in cross-border e-commerce trade and, as a result, increased demand for our express logistics services and expertise in intercontinental deliveries," says Travis Cobb, EVP Global Network Operations and Aviation at DHL Express. "With the new Boeing 777Fs, we can increase our intercontinental connections while reducing carbon emissions and fuel consumption. This enables us to continue to provide customers with the excellent quality they've come to expect from us while we work to expand our global services."

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