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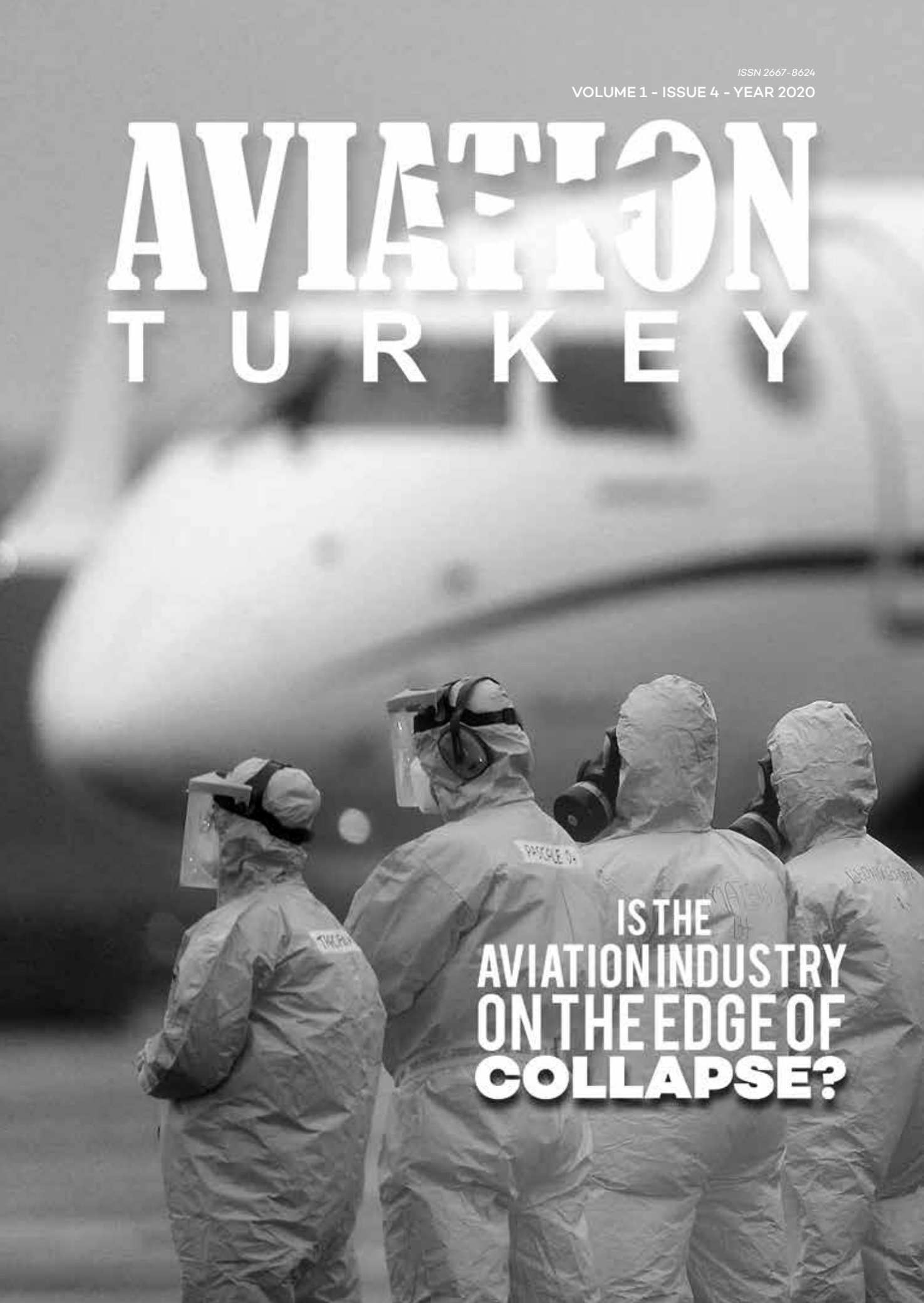
AVIATION TURKEY



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AVIATION TURKEY

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The cover page is credit by Luiz Alberto Cortes Silva - Beto Barata, Photographer

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How Will COVID-19 Impact Aviation and How Will It Recover?

The impact of the COVID-19 pandemic has caused an unprecedented state of uncertainty for all business circles as well as aviation which has been the hardest hit. Executives and officials are struggling to understand the new situation with new challenges.

The industry is united with governments around the world in efforts to stop the spread of the virus, and, in the face of massive government imposed travel restrictions, the industry is doing all it can to maintain air cargo operations that are vital to supporting global supply chains, including medical shipments that are critical in the fight against COVID-19.

The economic impact of the measures taken on all involved in the global air transport industry has been severe. With passenger demand plummeting to unprecedented levels, revenues are falling beyond the ability to mitigate this drastic decline, even with the most extreme cost-cutting measures. Airports and airlines continue to face a financial liquidity crisis. Moreover the current state of the global air transport industry risks the loss of millions of jobs.

It is obvious that and urgent financial action should be taken by governments to assist the aviation industry to protect jobs, ensure essential operations, and plan for recovery.

The most comprehensive scenario-based analyses on how to survive, sustain essential operations and preserve jobs have been conducted by ICAO, IATA, ACI and all related international organizations and associations of aviation.They have respectively published best & worst-case scenarios about the future of the global aviation sector from the outset of the outbreak.

Recently Airports Council International (ACI) World and the International Air Transport Association (IATA) came together to call for governments to quickly grant financial relief to assist airport operators and airlines during the COVID-19 crisis and to support the essential connectivity the industry will provide for economic recovery.

ACI and IATA are calling for urgent balanced support to the industry via:

- taxation relief, including alleviation of payroll taxes, corporate taxes, concession fees or other government income from the industry
- loans, loan guarantees or direct support to maintain financial liquidity across the aviation ecosystem

According to latest economic impact analysis released by the ICAO, the latest estimates indicate that the possible COVID-19 impact on scheduled international passenger traffic for the full year 2020, compared to Baseline (business as usual, originally-planned), would be:

-V-shaped path (Scenario 1: a first sign of recovery in late May) – Overall reduction ranging from 38% to 55% of seats offered by airlines – Overall reduction of 861 to 1,292 million passengers – Approx. USD 151 to 228 billion potential loss of gross operating revenue of airlines

-U-shaped path (Scenario 2: bottom out and pick up in third quarter or later) – Overall reduction ranging from 48% to 71% of seats offered by airlines – Overall reduction of 1,108 to 1,524 million passengers – Approx. USD 194 to 269 billion potential loss of gross operating revenue of airlines. The impact depends on the duration and the magnitude of the outbreak and containment measures, the degree of consumer confidence for air travel, and economic conditions, etc.

The European Commission is currently developing a set of rules for the safe reopening of air travel in the context of the COVID-19 crisis. These guidelines and protective measures should be published mid-May 2020 according to the European Commissioner for Transport, Ms. Adina Valean. The proposed

rules should ensure a safe, timely and workable return to normal operations for all airspace users in Europe.

I personally believe that the whole world is facing many of the same challenges and it is as if the pause button was pressed and the world as we knew it came to a sudden hault. Business people who could not catch a breath from intensive schedules with monthly travel and meetings are now working remotely and perhaps pondering their life, while breathing deeply from a window or balcony of their home during quaratine. What did humanbeings miss while being focused on a fast paced life, the thrill of goals, contracts, competition, ambition of success, making more money? It is as if an environment was created that has given everyone an opportunity to think and ask themselves these questions: who am I, what am I doing, what do I want from life, what do I love and what is really a waste of precious time. I hope to calm down in this process and reflect upon my life. I also hope that many of us will take time to look at our lives from a new and different perspective as our personal lives inevitably extend into our business lives and we can face the future with renewed purpose and the full force of our energy...

Enjoy the issue..

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Turkey's International Cooperation, Expertise and Forward Vision in Aviation

In this exclusive Aviation Turkey interview, Suat Hayri Aka, the Permanent Representative of Turkish Republic of Turkey to the International Civil Aviation Organization discusses how Turkey's active participation in international cooperation is building national visibility with a target to become a member of the Council and Aviation Navigation Commission. The next Council members will be elected in 2022 in the elections at the General Assembly and preparations are underway engaging the ICAO community as well as Turkey to join back with Council membership.

Aviation Turkey: Mr. Suat Hayri Aka, you have assumed the role of the Permanent Representative of the Republic of Turkey to the International Civil Aviation Organization (ICAO) and we wish you success in your new position. Could you please briefly introduce yourself to our readers?

Suat Hayri Aka: Thank you. I was appointed as the Ambassador - Permanent Representative of the Republic of Turkey to the ICAO with the Presidential decree dated December 7, 2019 and I took office in Montreal on January 1, 2020.

Previously, I was working in the Ministry of Transport. I served as a Deputy Undersecretary between 2006 and 2016 and as Undersecretary of the Ministry since 2016. While I was Deputy Undersecretary, I was responsible for the aviation and maritime sectors and our Ministry's Foreign Relations and EU affairs, and related departments. When I became an Undersecretary, my responsibilities also included matters such as the construction and regulation of Highways and Railways, as well as Communication and Information Technologies and Satellites.

Aviation Turkey: Mr. Aka, you have had an important professional Maritime career. In addition, you assumed responsibilities in the field of Aviation and Air Transportation in the past as well. What would you like to say about this?

Suat Hayri Aka: Yes, I assumed various roles in various branches of maritime, both during my education and as a long part of my professional career. I worked at sea as a seafarer, lectured at various universities for many years as an academician, engaged in maritime trade at various fields on my own behalf for 16 years and I've served as an executive in top levels of management during the last 13 years. This is a long career in transportation. I became familiar with Aviation in 2006 after I was appointed as Deputy Undersecretary. Although I had some hesitation at the outset, I had the chance to learn and accommodate myself to aviation rather quickly thanks to the operational and technical similarities in the Maritime and Aviation sectors.

Maritime is a much older discipline than aviation; it has a history of more than two thousand years, whereas aviation is a discipline and service industry developed in the last 150 years. A branch developed in many aspects being inspired by maritime rules and procedures in areas such as law, technique, operation, security and safety. Life, Property and Environment safety and security constitute the core of the basic rules considered as the constitution of both branches.

I can say that being a licenced Ocean Going Master is one of the factors supporting this rapid adaptation.

As one of the decision makers on behalf of

Dr. Fang Liu - ICAO Secretary General met with Suat Hayri Aka

the Ministry for 12 years, I was involved in the activities of the General Directorate of Civil Aviation and the State Airports Authority. We worked closely with Turkish Airlines, our private airline companies, service organizations delivering ground services etc., and with sectoral non-governmental organizations at all times. We teamed up with our stakeholders on issues such as planning and construction of airports, training, supervision, authorization and certification of airline companies, negotiations and decisions for national and international flights, aviation safety and security, and international cooperation.

Many issues such as safety, environment, education, licensing, traffic and supervision are highly similar, but when you look at the two sectors together, you see that the relative speed is very high. This requires a new way of thinking, a new approach in most cases.

In addition, areas such as unmanned aerial vehicles, the use of artificial intelligence in aviation, high-altitude operations, novel technologies and cyber security contain unprecedented opportunities and risks as well. I also have the opportunity to improve my know-how on such issues.

Aviation Turkey: As of January 1, 2020, you assumed a significant role during a time when Turkey had lost its membership in ICAO Council. Could you please inform us briefly about the current daily activities of the Permanent Representation, duties and responsibilities, and organizational structure?

Suat Hayri Aka: First of all, I would like to point out that Turkey did not lose its Council membership; Turkey did not nominate at own request. This was because of an organization made within the European ECAC group in the previous period. While I was the Undersecretary of the Ministry of Transport, Maritime Affairs and Communication, Turkey was elected as the Council member of in 2016. we carried out collaborative work for this goal together with our Ministry of Foreign Affairs and Turkey was elected the Council member after 66 years.

Turkey, however, has maintained its position among the leading countries globally thanks to its location on the route of the world's busiest air transportation, as well as the success of its airlines. Of course, the achievements of our regulatory bodies and airport administrations should not be disregarded. In our activities, we focus primarily on providing a representation equivalent to this leading position in the ICAO and having a voice in the ICAO's decision-making bodies.

We say Turkey should and will become a member of the Council and Aviation Navigation Commission, which determine the global civil aviation standards and take important decisions. The next Council members will be elected in 2022 at the General Assembly, in which 193 member countries will attend. We strive to work on the ICAO community as well as Turkey to join back with Council membership.

Additionally, we inform our sector and institutions about the developments in the ICAO, and we exert utmost efforts to incorporate in their contributions with their expertise and experience in the activities of the ICAO. This is a very important point, since national visibility has enormous significance in the preparation of the Council elections I just mentioned.

Aviation Turkey: What will Turkey's vision be towards its Council membership again in 2023? What would you like to tell about the process and the planned campaigns?

Suat Hayri Aka: The process for the Council elections in the ICAO is different than those in the other UN agencies like IMO and others. First, it depends on the consensus reached within the regional organizations that the states are a member of. At this stage we will strive to achieve a general consensus in the European Civil Aviation Conference (ECAC) for Turkey to become a member in the Council. As a strong member of the European civil aviation community, we do not want to achieve an election success "despite" our European counterparts. Even though many Europeans allied states take Turkey's membership to the Council naturally, it can sometimes be difficult to ensure the reflection of a collective consensus to the elections. The only way to achieve this is to engage

39th Session of ICAO Assembly

in genuine dialogue and uninterrupted exchange of views. It is our success that our country is effective and is not ignored, however being fair enough not to ignore this success is the duty of our European allied states. In addition, there is an alternative for us to withdraw from the regional formations and participate in the elections as an independent candidate.

If an agreement is reached regarding the Council elections within the ECAC, the votes of the European region would be towards backing Turkey's membership to the Council. But of course, the number of votes is not enough for us to be elected. The ECAC has 44 members; you need to get over 110 votes to be elected. At this point, we plan to carry out campaigns before all ICAO stakeholders in coordination with our Ministry of Foreign Affairs. We have bilateral, multilateral relations with each country and every region, we have economic, military, commercial cooperation, we are the members of international organizations other than the ICAO and we have highly structured relations with various stakeholders.

We will contribute to conducting a membership campaign for 2022, the details of which will be designated by our institutions taking into account these factors, as in the process that lead up to our Council membership in 2016. We will strive to inform our institutions on all processes, from political decision-making, to ECAC consensus, campaign preparations, campaign conduct and the policies we will follow during our membership period.

Aviation Turkey: What are the activities being carried out by the Permanent Representation of the Republic of Turkey to the ICAO regarding the participation of Turkish associates in the ICAO's processes and organizations for aviation safety and security?

Suat Hayri Aka: The role of our experts on Turkey's achievement in civil aviation is incontrovertible. We really owe much to the work discipline and dedication of our expert staff. We want to contribute to expanding our experts' vision and to increase their professional experience by making use of the international working environment that the ICAO offers and the global portfolio it has, and in doing so, we want them to take an active role in setting global aviation standards.

There are two methods for the assignment of our experts in the ICAO; one of them is the assignment in the Organization's units provided that the costs are covered by Turkey (i.e. secondment) and the other is the acceptance by the ICAO as a contracted employee. In the last decades, more than 10 experts have served in the Headquarter and regional offices of the ICAO through the secondment method. In order to increase this figure, it is our duty to maintain Turkey's active position and good relations in the ICAO. It is also our responsibility to be in close communication with the top management of the Organization, to act as a bridge between them and our institutions, and to conduct negotiations to propose the most suitable candidates for vacant positions within the ICAO.

I am pleased to say that our officers that who are temporarily

assigned to ICAO units through secondment are appreciated for their work discipline, performance and good communication skills, and their term of office is requested to be extended by the Secretary General. Our institutions evaluate such extension requests as per their personnel requirements. We want to increase this figure.

Aviation Turkey: Dear Ambassador, Montreal is a very important center where all stakeholders performing activities in the field of aviation are able to work in areas in addition to Permanent Representation, and aviation experts from Turkey also work at different levels and posts in the ICAO. What do you think about the number of Turkish employees, their level and status, and their effectiveness in contributing to ICAO processes? Do you have plans for improvement in these areas?

Suat Hayri Aka: As you said, in Montreal there are organizations established by states such as the European Union, as well as representatives of sectoral associations. The most commonly recognized organizations of this type are the International Air Transport Association (IATA), the Airport Council International (ACI World) and the Civil Air Navigation Services Organization (CANSO). There are nearly 50 civil sector organizations invited to ICAO activities. Currently, there are four Turkish specialists working at the IATA, one of which is at the executive level.

I should also mention here about the effectiveness of such organizations in ICAO processes. In the ICAO, it is almost compulsory to involve industry organizations in the process of setting aviation standards. At the end of the day, there are not only national official civil aviation regulators among the implementing agencies to implement the related norms you set here; there are also operators (the private sector in many countries), airport terminal operators, air navigation service providers, and of course aircraft manufacturers. These sector organizations participating in ICAO activities express their opinions on behalf of the sector they represent during the decision-making process. They make very significant contributions.

Also, while setting or updating a standard, a consultation process called “State Letter Consultation” is followed. In this process, the ICAO does not only receive written opinions from member states, it also receives contributions from sector organizations. These organizations do not have the right to vote like a member state, but their contributions may, in some cases, be more effectual than member states.

The success of our country’s operators and airport terminal operators necessitates them to be active in global organizations in this field and requires the assignment of our experts there. As an addition to what I have just said about our experts working in the IATA, we also want our experienced personnel working in airport operations to work at institutions like ACI for example, in order to make Turkey’s competent staff more visible. We have just made initial contacts to this end.

Aviation Turkey: What is the number of Turkish employees currently working at the ICAO? What is the ratio of the permanent staff on the ICAO payroll? If we accept the Secretary General’s position as the top level, what is the level of the Turkish employees?

Suat Hayri Aka: Currently, 2 experts work in the central units of the ICAO and 2 in the European and North Atlantic Office in Paris, under a secondment method. In addition, as permanent staff - even if not directly from the aviation industry - the ICAO’s Internal Audit Director (Lead Auditor) is our citizen. The Lead Auditor is a member of the Senior Executive Group where the Secretariat's important decisions are taken.

Here, there is a point to which I would like to draw attention. The fact that we become more active in organizations such as the ICAO, IATA, ACI World and CANSO depends on the increase in the number of our qualified aviation experts. As you would appreciate, a country becomes capable to train more personnel for such organizations only after it reaches the level of managing its own expert needs. Today, human resources strategies are being discussed and global initiatives are being taken that can support the increasing demand for air transportation worldwide. Our country also takes an active attitude under the initiative of "Next Generations of Aviation Professionals" initiated by the ICAO and it also

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involves its academic institutions in the process. Making and keeping the sector attractive for the new generation is a matter of comprehensive planning, training and investment. In this context, we continue to make awareness-raising contacts for our institutions and stakeholders.

Aviation Turkey: As a result of the New Type Coronavirus (COVID-19) outbreak, which is a global pandemic, we see that the aviation industry is affected the most by this crisis. Many airlines have grounded their aircraft and flights have been suspended to many countries. What activities are being carried out within the ICAO to address this crisis? What are the responsibilities that you assume as the Permanent Representation of the Republic of Turkey to the ICAO for this kind of disaster and state of emergency?

ICAO Headquarter, Montreal, Canada

Suat Hayri Aka: First of all, we have to say that in the ICAO, like many other organizations such as the United Nations, many member states have been going through an unprecedented crisis, the aftermath of which is difficult to predict. Even though the ICAO has established the Crisis Response Policy based on such events and disasters that civil aviation previously managed to overcome, such as Ebola and SARS, the novel Coronavirus stands as an uncommon challenge before us. What will happen in civil aviation in this regard depends very much on the decisions to be taken at national level on public health and economic performance. On the other hand, national governments make their decisions almost instantaneously as per the developments and findings. In a nutshell, a complete uncertainty prevails.

In this context, the ICAO has multidimensional functions. The Council -the political decision-making body- made a declaration on this matter. In its call, it stressed the importance of ensuring that response actions and measures are based on science and facts, expressed strong support for the calls by the World Health Organization (WHO) and affirmed the importance of strengthening international cooperation and solidarity.

The Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA) has already been established here, which is a concrete contribution of the ICAO in the field of international cooperation, is a network in which states, non-governmental organizations and United Nations institutions participate, and it is a platform for effective sharing of current data.

The ICAO Secretariat also conducts awareness-raising and informative activities for all stakeholders to ensure that ICAO standards are fully implemented under the current circumstances. It opens some points for discussion in relevant units whether the Chicago Convention and its annexes need to be updated, and the ways in which they are rearranged bring about better results, and it reinforces international and cross-industry dialogues.

In addition, the ICAO's Air Transport Bureau assesses the economic effects of the pandemic, its potential impacts on the industry and possible consequences for the global economy. As you know, according to the organizations working on the data and

forecasts in this regard, one-unit value created in the civil aviation industry reveals as a growth of 3.25 units in the overall economy. In other words, the contraction of this industry results in a larger contraction with a multiplier effect on the overall economy.

In its economic impact studies, the ICAO conducts analysis based on the SARS and Ebola virus outbreaks that previously emerged and affected the world and strives to develop some possible inferences according to good and bad results by creating scenarios through the data received from institutions and operators of member states. However, as I mentioned previously, COVID-19 is an unprecedent pandemic. Since its course and the policies of the states towards it vary, what it will bring for the future of civil aviation remains unclear.

Our duty as a national delegation is also to inform our country's institutions on all these developments, to encourage the active participation of our country in the international cooperation process, and to transparently inform the international civil aviation organization about the measures taken in Turkey and the background.

Suat Hayri Aka

Aviation Turkey: Mr. Suat Hayri Aka, is there any message you would like to convey to Aviation Turkey readers?

Suat Hayri Aka: Firstly, I wish mercy to all our citizens who lost their lives due to the pandemic and I extend my condolences to their families. I would like to express my gratitude to all our healthcare workers. I would also like to express my sincere gratitude to our aviation workers working under great risks for their dedication.

I would like to convey three messages to your readers. Firstly, I advise them to realize the meaning that civil aviation has for the world and humanity. Against the adverse point of view about the aviation to led to the spread of COVID-19, we should bring to mind the impossibilities that occurred due to the flight cancellations, and the emerging "black market" transportation alternatives during the volcanic eruptions in Iceland in 2010. We should keep our confidence in the positive contributions of civil aviation. We should bear in mind that if this sector shrinks, it means many other sectors also shrink or even disappear.

My second message is for young professionals and educators and trainers. One of the sectors that will maintain its effectiveness as long as the human species survive on earth will undoubtedly be the logistics sector. I advise them to consider the latest trends of this sector and contribute to the policies that will bring success to our country for training the new generation professionals together. Our country can be a center for training Next Generation of Aviation Professionals (NGAP); the Turkish Civil Aviation Academy (TCCA) exists for this objective; the training centers of our operators can lead us to a new position in the international arena.

Lastly, I would like to say that I attach particular importance to the activities of media that have a significant role in informing the public about developments in air transportation like you and I wish them to continue. Aviation Turkey Magazine plays a key role in this sense and fills a gap. On this occasion, I would like to convey my sincere regards to your team. I would be glad to cooperate with you as the Permanent Representative of the Republic of Turkey to the ICAO

Istanbul Airport - A Monument of Achievement that will be Passed down from Generation to Generation

by H. Kadri Samsunlu Chief Executive Officer at IGA Istanbul Airport

In April, we were excited to celebrate the first year of the full operation of Istanbul Airport. It is the gate of our country which opens to the future and is called the "Victory Monument" by many authorities. We achieved a great accomplishment by carrying out the most successful and biggest move in aviation industry with our stakeholders on April 6, 2019, for the transition to full operational capacity.

H. Kadri Samsunlu

Istanbul Airport is the reflection of a profound vision, beyond being just an airport, from the initial groundbreaking to the construction phase, and to the first moment it started its operations. Istanbul has been the capital of important civilizations throughout history, the civic center of Europe, Asia and Africa, and it is a unique city not only for us but also in terms of world history. Istanbul, which has become a brand with its architectural and historical richness, and a global center of attraction in terms of culture, art and trade, is a kind of meeting point of Turkey. Istanbul Airport has the characteristics of a masterpiece. It was created with the vision of bringing our country's assertiveness in aviation up to the highest level, with the desire to produce a sustainable structure, part of a long-lasting ecosystem that is worthy of this valuable treasure.

We experienced many historic moments during the construction and activation of Istanbul Airport. The massive transfer operation called the "Great Move" was one of the most ambitious transfer operations in the civil aviation industry and demonstrated proof of Turkey's logistics success. This process was conducted with the seamless transfer of 47 thousand 300 tons of equipment from Ataturk Airport to Istanbul Airport in 33 hours, just shorter than two days. As IGA, we flawlessly managed the operations from an active airport to the new one located 45 kilometers away. In this regard, the "Great Move" has secured its place in aviation history as an extremely comprehensive and well-managed operation. I would like to especially express that there are very few countries in the world that have the capacity to carry out such an operation. Our country is distinguished in aviation history as being among those countries.

As IGA, we have made an additional payment of ***EUR 22.4 million*** to the state as a result of exceeding the EUR 233.1 million International Passenger Income guaranteed by the General Directorate of State Airports during the first year of Istanbul Airport, the full-capacity operation process of which was started on April 6, 2019. ***During our first year, without using any state resources***, we became the center of interest for the international aviation community by placing our signature under this important achievement.

The occupancy rate of Istanbul Airport Duty Free reached 98.4% as of March 2020, spending per capita increased by 55% since the opening, and we served 445 thousand passengers in our IGA Lounge, performing above our targets during the last one year period in private passenger services. We broke a record by offering our special passenger services to a total of 1.3 million guests. ***Within a period of nearly one year, between April 6, 2019 and March 31, 2020, we hosted 64 million passengers and 74 airline companies at Istanbul Airport.***

With our exclusive architecture, efficient infrastructure, superior technology and the high-level travel experience we offer, we are at a critical juncture to fulfill our promises to our country, our aviation industry, our stakeholders and our passengers. Now we are all enduring the Coronavirus pandemic which is adversely affecting both the entire world and our country. We have been exerting all efforts to take maximum precautions against the Coronavirus risk by placing thousands of hand disinfection points throughout Istanbul Airport. Disinfection activities are conducted at the terminal building and we have provided training to our personnel. We use thermal camera controls, we disinfect the transportation vehicles, and we also utilize the red line application at counters and passport control points. I would like to emphasize that after the Coronavirus outbreak we will adapt with the world as we navigate new ways of operating to provide safety and stability with our understanding that "public health comes first" by making the appropriate changes.

Aviation is one of the industries mostly affected by the coronavirus (COVID-19) outbreak that first emerged in Wuhan, China in January 2020. While the pandemic rapidly changed the economy, public and our daily lives, it also changed our travel habits. This delay to the season opening of the tourism sector, domestic and international travel restrictions, cancellation of many international cultural, sports activities and many sectoral fairs affect us negatively as well as all industries.

According to the analyses, the potential impact of the coronavirus pandemic on the aviation industry is estimated to be a loss of US$ 70 billion. ***The International Air Transport Association (IATA) announced that 25 million jobs dependent on aviation and related sectors would be at risk due to the coronavirus outbreak.*** Considering that approximately 65.5 million people earn their living from sectors related to the aviation industry such as travel and tourism, the IATA research published on April 7, 2020 also reveals that 25 million jobs are at risk in aviation and related sectors worldwide based on a scenario with severe travel restrictions lasting for three months. In addition, it is clearly seen how our sector is seriously affected by the crisis, considering that passenger revenues of airline companies are expected to drop by 44% in 2020 compared to the previous year, and that demand will decrease by 70% in the second quarter of this year. Additionally, airline companies will face a liquidity crisis with a US$ 61 billion cash burn.

In the light of all these developments, a very difficult year is ahead of us. But we are confident that the growth of the Turkish aviation industry will continue with increasing momentum in the coming days and will overcome this crisis with solidarity. This crisis we have been going through is not just a financial crisis. It will not take much time for people to return to their old habits following the creation of an environment of trust after they have been stuck in their homes for weeks on end. In our mutual consultations with our stakeholders, we see that everyone shares the same opinion. ***The aviation industry has always been able to get out of such crises stronger, as we have seen in the past.***

I am sure that we will achieve even higher figures at Istanbul Airport in terms of the number of passengers and cargoes. There is no deviation from our target of entering the 100 M club in terms of the number of passengers. As IGA, the operator of Istanbul Airport, we constantly renew ourselves in terms of travel experience. Currently, the construction of the 3rd runway is ongoing. We plan to put this new runway into service on June 18th, 2020 which will provide substantial advantages operationally. With our spirit of enthusiasm, we look forward to welcoming our passengers once again. As a country that achieves growth in every field, realizes outstanding projects, and one that has become a major player with its investments not only within its region but also on global scale, we believe that good days will come soon.

With our aim to make Istanbul Airport a global brand, we will offer the world Turkey's world-class expertise, and we are taking firm and confident steps on our path toward this objective

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Mehmet Nane: "We will Look Towards a Brighter Tomorrow with Hearts Full of Hope

Muhammed Yılmaz, one of our magazine's authors conducted a live interview with Mehmet Nane, CEO of Pegasus Airlines, on his Boardinginfo Youtube Channel on April 1, 2020. CEO Nane expressed his views and opinions for the first time on the damages caused by the Coronavirus in the aviation sector, his projections, the company's strategies and discussed Istanbul Sabiha Gökçen Airport's 2nd runway, which is under construction for quite a long time. We've compiled the highlights of this exclusive interview for you, the readers of Aviation Turkey.

Muhammed Yılmaz: We are at the office of the CEO of Pegasus Airlines, Mr. Mehmet Nane. As you know, we have a heavy agenda as the whole world battles against the coronavirus pandemic and the aviation industry is one of the sectors most affected by the pandemic. Nearly all global airline companies temporarily grounded approximately 95% of their aircraft. Operations have almost been suspended and Pegasus Airlines is one of the aviation companies that adopted such measures. How do you evaluate this situation, as the CEO of an airline that now has most of its airplanes temporarily grounded?

Mehmet Nane: Not only the aviation sector, nearly all sectors, excluding a few, have been adversely affected by this crisis in an unprecedented way in our history as this crisis does not proceed similarly with the economic crises or other epidemics we have experienced before. The deaths occurring due to the rapid spread of the virus will unfortunately make every citizen of the world remember this crisis. In this perspective, one can perceive that this is an extreme case. Therefore, without doubt, it is natural to launch unique action plans and implement certain measures in such unusual cases. Hardly any of the previous crises stopped the pace of life to the extent that we are seeing now. Sanctions such as the closure of national borders and the lockdowns have not been imposed before and the hospitals did not exceeded their capacity either. This led countries to internalize their economies. Consumption habits of individuals

became rather focused on healthcare and food. The lack of consumption in other areas has caused problems in the production of services and goods. The aviation industry is one of the main sectors that have been affected from such circumstances where global measures and restrictions have been applied. This outbreak decimated the demand for travel. Finally, upon the decree adopted on March 28th, domestic flights have been suspended and it was decided upon to conduct flights with the permission of the related governorship only under certain conditions.

Muhammed Yılmaz: You are also a member of the Board of Governors of the International Air Transport Association (IATA). The IATA follows the crisis very closely and reveals various scenarios on its reflections over the industry, and the losses in the sector in terms of passenger and finance. We also follow these developments closely as well. A possible loss of US$ 131 billion was announced as part of the worst-case scenario in the report published in the beginning of March. However, the IATA updated its reports as the crisis gained depth and the figures proceed towards terrifying levels. According to the latest scenario, a revenue loss is expected to reach US$ 252 billion. How will Pegasus Airlines be affected in this scenario that projects a financial loss of US$ 252 billion? In other words, taking into consideration the prominence of the aviation industry on a global scale, what does this huge revenue loss signal to us and where does Pegasus stand in this process?

Mehmet Nane: The scenario revealed by the IATA is merely related to the commercial losses of its member states and companies, but the indirect impact of this crisis will be far worse. An individual will stay at a hotel when visiting a place, will dine at a restaurant or two and perhaps buy a few things at a store. New business connections are built during business travels, setting the scene for new opportunity. Therefore, tourism intrinsically affects trade very significantly. When we consider the turnover loss of the airlines, similar conditions also apply to Pegasus. When the IATA revealed its projections in the beginning of March, we were still conducting flights abroad and we were also carrying out domestic flights. All our international flights were suspended on March 23rd in line with the measures adopted by our country. Five days later, on March 28th, our domestic flights were suspended as well. This resulted in a decrease in our turnover each day. If we project our turnover for this year roughly as €2 billion, as Pegasus Airlines, we will fail to achieve at least €1 billion of this projection. When we review Q1 data, we have only realized one third of the aforementioned turnover figures. We presume that we would achieve a turnover of € 600 million more in the remaining period on the presumption that domestic flights resume. I believe that it will end up in a positive way; I believe we will achieve the remaining €1.5 billion out of the projected turnover of €2 billion, surely on the condition that domestic flights will resume as of July. Even we cannot make a clear projection; we can barely design different scenarios such as a-b-c-d. What if we only see that domestic flights are restarted? What happens if both international and domestic flights become active again? These scenarios also have their own breakdowns. We are a publicly traded and listed company. Normally, we reveal an outlook including our projections at the beginning of the year. But this year we failed to do so, as the measures and restrictions escalate day by day. When the date of the flights become clear, the course that will follow will also become clearer. When this date becomes definite, we will finalize the outlook and will launch one of the scenarios we designed or will be implementing one of our transition scenarios. Based on daily data, the IATA looks over the loss incurred by the aviation industry. When we look at this situation from a wider perspective, many product and service suppliers ranging from tourism to trade will be affected adversely from this crisis.

Muhammed Yılmaz: The reports published by the IATA suggest that this process will proceed in a U-shaped sharp fall, followed by a prolonged contraction and then a recovery, rather than a V-shaped fall followed by a rapid recovery. According to this scenario, many airline companies will not be able to maintain their operations with their existing cash-flow. Even major airline companies may go bankrupt. There are also some terrible scenarios forecasting that all airline companies will go bankrupt if this process lasts for 3 months. Overall, is it probable that Pegasus Airlines will fail? What is the outlook for your company in being able to continue its operations after this crisis? What are your alternative plans?

Mehmet Nane: As a publicly held company, we already have financial reports that have been declared and audited and we made it public in the beginning of March. You see certain items in the balance sheet and one of them is the cash assets. You can find our balance sheet at the official website of the stock exchange or at our corporate website. Both websites contain our year-end financial statements of 2019 audited by an international audit company. As Pegasus Airlines we do not have such a pessimistic scenario, and I hope we will never have one. We believe in the strength of our financial structure. I am certain that our financial reports also put forth this stance quite clearly.

Muhammed Yılmaz: State aid has come to the fore in this process. Today, even the company Boeing has asked for a sizable amount, US$ 60 billion directly from the state. The IATA's report and other sectoral reports reveal that the survival of airline companies without state stimulus package will not be possible. Have you asked for direct support from the state, as Pegasus Airlines, since the beginning of the crisis?

Mehmet Nane: The stabilization program


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announced by our President does not address only one sector, it addresses sectors all over Turkey. As a company that remains a prominent player among the top 50 companies of Turkey, providing employment opportunities to 6,600 people, we will benefit from these stabilization and recovery programs. At the first stage, we applied for the short-term working allowance and a program composed of 19 items that are available for our company. There may be certain breakdowns based on sectors in time. Both regarding the rule makers and also, we do not know where this process is heading . As Pegasus Airlines, the investment planned to be made this year for new airplanes is nearly US$ 1 billion. This crisis has affected our company in two aspects. Firstly, the cash outflows had to be taken under control, because the cash outflow could only be managed properly in the existence of the cash inflows. Secondly, we must maintain new cash inflow and in our case the availability of the utilization of credit limits may allow us to achieve this. Companies own certain credit limits under normal circumstances, we do not have any other demand other than the availability of the utilization of these credit limits. We need new cash inflows to return to normal, if our approved credit limits are launched, we can say that we can overcome this as an industry. We will surely be pleased if additional programs are provided. At this point, the priority sectors should be determined. Tourism is one of the industries that build our main sources of income, and our guests in the country and in foreign countries need to be transported to vitalize this industry. Here, the airlines play the key role as carriers. Turkey hosted 50 million international tourists last year and achieved over US$ 30 billion in tourism income. We thought we would break this record this year but unfortunately, the world encountered the coronavirus crisis. For instance, if you attempt to bring 25 million tourists via road transportation or by seaborne or railways in this period, you will see that neither the highways nor the train stations will suffice to achieve this. Aviation is truly more importance from this point of view. But if we fail to protect the aviation industry, it will lose strength and weaken in Turkey. Then, if foreign carriers gain more prominence in Turkey, this will lead to a loss of added value achieved in Turkey which will create an advantage for foreign countries. As we underline the prominence of the Turkish aviation industry for Turkish tourism, we see that the survival of aviation is also becoming a critical component that enables the survival of Turkish tourism.

Muhammed Yılmaz: You have over 6,000 employees at Pegasus Airlines and perhaps most of your employees are thinking

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about their future and wish to hear more about what the future holds for Pegasus, from the top executive of their company. What would you like to say to the employees of Pegasus on the topic of paid/unpaid leaves and layoffs, and about the future that awaits them?

Mehmet Nane: Today (April 1, 2020), I conveyed to them my messages clearly via a 4.5-minute video message. Therefore, presently Pegasus employees do not have any hesitations in this area. We started to work from home as of March 23rd. The process of working remotely was supposed to last until March 31st. Our executive board gathered in a virtual meeting yesterday and as part of the resolution that we adopted, we will be continuing to work from home until further notice. By the way, as part of the support of our government within the scope of the stabilization shield project, we have a short-term working allowance. Last week we submitted our application for this and are waiting for it to be granted. We aim to survive this crisis without losing even a single employee of our 6,545-member team and we wish to look hopefully towards the future as we did yesterday. We are benefiting from all the facilities that are provided for our company in an ardent effort to avoid any layoffs. We also implemented salary increases as planned for 2020. We distributed the premiums of 2019 that we owed to our employees and we talked about the sacrifices we need to make with our teammates, and we are relieved as our government will provide compensation for this as part of the short-term working allowance. Within the next 3 months, if we could benefit from this allowance after our application, we will not be faced with any financial losses. As part of the executive management team, I took the initiative and declared that I would be working for three months without any salary payment and demanded unpaid leave, then the members of our executive board joined this pledge as well. Our colleagues on the Executive Board and top management positions did not ask for salary increases and we did not receive any raises this year. Surely, these are all symbolic moves that demonstrate our resilience and ability to shoulder responsibility; we will overcome this hardship together.

Muhammed Yılmaz: What are your projections on the future of the trainee pilots that are continuing their training at your company's flight academy and the prospective pilots that made preparations to apply to this academy in 2020? Similarly, what would you like to say to those individuals wishing to work at Pegasus Airlines?

Mehmet Nane: The name of the program that we launched is the Cadet Program. There are two Cadet Programs in which we offer training to our trainees at home and abroad. We had to suspend the training of our trainees in line with the suspension of the education system in Turkey. The training of our 40 fellow trainees in Ireland continues there.

SAW 24 final approach of Pegasus Airlines TC-AIP Boeing 737-82R WL to Sabiha Gökçen Airport, 04 May 2014.

© Sıtkı Atasoy

We were going to procure 16 more airplanes this year. Two of these airplanes arrived and next week 3 more will arrive, we continue to receive them. Germany's air space is closed so the airplanes of Airbus from Hamburg will be received at the airport of Airbus on our behalf and will wait there (on April 22nd three airplanes were received through the e-delivery method) and we will bring these airplanes to our country once the air space is opened. We will continue to procure these airplanes and we will grow. We foresee that this is a temporary crisis just like others and believe that it will not last forever. As we believe in the dynamism of our country, its growth potential, and since we believe in our country, we will continue to make investments, create employment opportunities and transport tourists to our country.

Muhammed Yılmaz: So, the process continues for the prospective pilots and the ones wishing to take part in this program.

Mehmet Nane: Surely the process will continue. We fly to 35 points in Turkey and to 43 countries and 75 destinations abroad, to a total of 112 points. As our standard flights are relaunched, we will continue to provide employment opportunities again.

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Pegasus A320neo

Muhammed Yılmaz: In addition to the airline companies and airports, airplane manufacturers were also hit by this pandemic. Entire production schedules of manufacturers were affected as many airline companies applied for either postponing or cancelling their orders. You have a contractual, significant production plan with Airbus. Have you made any request to Airbus for a change in production or delivery programs? Or do you plan to request changes in the upcoming period?

Mehmet Nane: We need to know when and which product will be manufactured so that we can foresee the course of events. Instead of postponing, we are trying to confirm the alignment of the manufacturer's time schedule. The airplanes that were supposed to arrive next week were scheduled to be delivered in March. So, there is already a 1-month delay.

Muhammed Yılmaz: There was a problem in delivery at the end of 2019 and deliveries were postponed, any comments on this?

Mehmet Nane: Five airplanes were supposed to be delivered in 2019 but the delivery was delayed to 2020. The delivery of four airplanes was delayed to 2021 and after. Europe and the whole world are experiencing the slowdown, and it is just the same in the business realm in Turkey. Production lines are affected similarly by this process. Airbus and Pegasus will decide on the position we will be taking accordingly and on our next steps.

Muhammed Yılmaz: Are all your airplanes currently grounded?

Mehmet Nane: We possess 84 airplanes. Two out of these 84 airplanes are waiting to be returned to leasing companies. Also, two airplanes from this group are under maintenance abroad. Currently, 80 airplanes are parked position in our country.

Muhammed Yılmaz: Is the whole batch of 80 airplanes in parking position at Istanbul Sabiha Gökçen Airport?

Mehmet Nane: 62 airplanes are in parking position at Sabiha Gökçen Airport and 18 airplanes are parked at various airports across our country. Our main airports are located at Ankara, Izmir and Antalya and 2 in Adana. All these airplanes are now at these 4 airports.

Muhammed Yılmaz: I would like to go back to the topic of Sabiha Gökçen Airport. The tender for the construction of the second runway was held in 2014 and the construction was launched in 2015. As of April 1, 2020, we see

that the second runway has still not been put into service. As Pegasus Airlines, you conduct 65% of the operations at Sabiha Gökçen and you are considered to be the host of this airport. Both the number of your operations and the capacity of the airport will increase once this runway is completed. Moreover, the traffic at the airport will be less heavy and our country will receive more foreign currency inflow. What are your comments about the completion of this runway?

Mehmet Nane: As a company conducting operations at this airport and utilizing its facilities, we desire the rapid completion of this runway. We were notified that the second runway would be launched to operation in November 2020. Our operations will be executed over two runways after the completion of the new runway in November.

Muhammed Yılmaz: It has been reported that the first runway will undergo maintenance work for 6 months during this process; therefore, the operations will be conducted over a single runway even if the second runway is launched.

Mehmet Nane: Sabiha Gökçen Airport made use of this closure and the operator company made several attempts to launch the maintenance process. The company launched the required infrastructure operations throughout the period where the airport is closed instead of assigning an additional period for maintenance in order to launch both runways when they are ready for operation.

Muhammed Yılmaz: Finally, I would like to conclude our interview with a general question on the aviation industry. It is considered that many rules in the aviation industry will change after the coronavirus crisis. As you know, many rules that are accepted as norms today were either the result or the reflection of the September 11 attacks. How do you assess the future of the aviation industry, what will change? As you know, there are rumors on bankruptcies, and it is said that various consolidations will become inevitable. Especially, it is projected that many European based companies will go bankrupt. What is your future projection in terms of the aviation industry in the aftermath of the coronavirus crisis?

Mehmet Nane: The approach of the states is quite critical at this point, but it is unrealistic not to project certain unfortunate incidents. As a matter of fact, many states announced state aid programs supporting their country's airline companies. Almost all European countries clearly announced that they would be supporting their airline companies even if they are private companies. Therefore, we can only wonder, what type of structure will we witness resulting from these support programs? Will these subsidies be enough for the survival of airline companies? We will surely see the consequences following the re-launch of operations. Any comment I make now would be merely a speculation. After the implementation of state-aid and revitalization programs, and after the recovery period, we will be able to observe the results.

Muhammed Yılmaz with Mehmet Nane

Muhammed Yılmaz: This has been a pleasant and informative interview. We hope that our readers have received the answers to many of their questions. Thank you for your time. I hope to have another pleasant interview with you again when our sector and country, as well as the whole world becomes normalized, when we embrace our good old days.

Mehmet Nane: I hope so, and I believe those days will come soon. We need to keep our unity and solidarity, and we must not lose our hope! Thank you very much...


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ONUR VCS/VRS Systems Provide Convenience and Additional Capabilities in Terms of Use, Maintenance and Operation

In our Interview, General Manager of ONUR - Noyan Dede discusess the efficient and functional VCS/BRS systems that run in an IP-based digital environment. As Experts in their field, ONUR is willing to establish systems at over 40 more airports with support from DHMI for the needs that may arise both at airports and air traffic control centers.

Aviation Turkey: Mr. Noyan Dede, could you inform us on the current structure, number of employees, and services offered by ONUR Mühendislik A.Ş. The company was established in 1980 to operate in the defense industry and civil aviation fields and was accredited as an R&D Center in August 2016. We'd like to learn more about the company's technology know-how and vision.

Noyan Dede: Our experience spans 40 years full of learning and development... With our team of 130 staffs, we are specialized in producing voice communication systems for Turkey's mission-critical applications. Today, we undertake the life cycle management of our own systems, including system design, software development, production, integration and after-sales services. We started in this journey with contract work, then we extended to integration and then to the development of our own systems. Our vision is to become one of the strong competitors for these systems globally.

Aviation Turkey: What would you like say about the 2019 performance and 2020 targets for ONUR Mühendislik, a well-respected company that has been serving defense industry and public institutions for 40 years in our country?

Noyan Dede: 2019 was a milestone for us. In 2019, we completed some of our critical projects and we reached the home stretch in other projects. Multitasking at the same time in engineering and system development is a capability that most of our competitors do not have.

Also, 2019 has another meaning for us. In the last period of the year, we have signed a contract for the first time to deliver our voice communication systems developed for air traffic control to an overseas client.

Aviation Turkey: ONUR Mühendislik has created public awareness mostly with its projects realized in the defense industry, but with the introduction

of the communication solutions you have developed for military use with national resources in recent years, civil aviation sales also started to get a substantial share in the Company's turnover. Do you have a new structure that will increase the investments in the field of Civil Aviation in the upcoming period? Could you share with us your short and medium-term goals in this regard?

Noyan Dede: In the field of Civil Aviation, we follow the regulations with the Directorate General of Civil Aviation (DGCA) regarding the new needs that have emerged due to the increased usage rate of unmanned systems, in particular. On the air traffic control side, we continue to hold talks with the General Directorate of State Airports Authority (DHMI) to further expand our domestic and national systems and minimize foreign dependency.

We continue to present our projects not only for our airports, but also for air traffic control centers and unmanned aircraft traffic.

During the period that we had gained momentum abroad, the Covid-19 outbreak hit and impacted global trade. We are holding for the effects of the outbreak to fade in the world, and we are maintaining our position.

Aviation Turkey: What would you like to say about ONUR Mühendislik's ongoing export activities, the most important export markets, the tenders and needs currently followed and the share of export in the Company's turnover?

Noyan Dede: Since 2017, we have been following the opportunities with our own systems ready for export. We are confident enough in our systems and our competitiveness.

Through the contract we signed with the civil aviation authority of the Kingdom of Morocco in 2019, we are eager to accelerate our export activities by increasing our recognition level abroad.

Aviation Turkey: Engaging in 4 major activity fields as Voice Communication Systems, Air Traffic Control Systems, Network Enabled Communication Systems and Cyber Security Systems, ONUR Mühendislik is one of the few companies having the competence to perform as the main contractor in meeting the needs of the General Directorate of State Airports Authority (DHMI) especially in the field of Air Traffic Control Systems, the Presidency of Defense Industries (SSB) and the Turkish Armed Forces (TAF). Could you inform our readers on your capabilities in the field of Air Traffic Control Systems for civil and military customers and your ongoing major activities?

Noyan Dede: Our voice communication system and recording and replay system, which we designed and produced with domestic and national resources under the ONUR brand in the field of Air

Traffic Control Systems, have the capability to meet all the needs of both airports and air traffic control centers. Currently, the communication in military airspace of our country which is quite intense is carried out with ONUR systems. This actually indicates the high level of competency that we have achieved as a company.

We are also confident in civil airspace management and control. We continue our talks for further use of our own systems, which are developed in our country and provide 24/7 support, instead of the foreign-origin systems used so far.

As you know, Voice Communication Systems (VCS) are now evolving to operate compatible with Internet Protocol (IP) numerically. The US Federal Aviation Administration (FAA) and the European Organization for the Safety of Air Navigation (EUROCONTROL) are in the process of setting standards and rules for this brand-new application. We, as ONUR Mühendislik, participate in the standard-setting process with the invitation of the aforesaid institutions and we represent our country. This detail alone is sufficiently acknowledges the level of our competence.

Aviation Turkey: What would you like to tell us about your Mobile Air Traffic Control Tower (OMT-M2000) solution in your Air Traffic Control Systems product range which is in compliance with both civil and military air traffic safety standards?


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Noyan Dede: Today, Mobile Air Traffic Control Towers are the systems frequently used for air traffic control in emergencies or special conditions. In short, these are the systems that can be transported anywhere with a carrier vehicle and become operational within 1 hour. Currently, there are two ONUR OMT-M2000s in the inventory of the Turkish Air Forces Command. They successfully perform their tasks at home and across the border. Our negotiations continue for the use of these systems in international projects.

Aviation Turkey: Could you inform us on the new IP based Voice Communication System (IP-VCS) OCS-NG4000 developed for air traffic control communication?

Noyan Dede: We can easily say that our Voice Communication System (OCS-NG4000), developed and produced indigenously, is the most capable and competitive product in terms of its features and price in its own market.

We have secured a tender in 2019, we are now carrying out the first export activity of this system, currently used in 37 airports in Turkey (11 of which are civilian), for the 5 airports in the Kingdom of Morocco.

Aviation Turkey: Under the contract you signed with DHMI in November 2015, leaving all international competitors behind, you established and IP-Based Voice Communication (VCS) and IP-Based Recording and replay System (VRS) for the towers of Adana-Gaziantep-Siirt-Muş Airports and delivered them to DHMI. With the project, the final acceptance of which was completed in January 2018, the indigenous communication solutions you developed for military use with national facilities have started to be used in civil aviation for the first time. What feedback have you received from the end-users regarding VCS and VRS that are in use at these airports and which are in compliance with the EUROCAE ED-137 standard?

Noyan Dede: With these projects, DHMI was provided with a domestic and national product in compliance with the ED-137 standard for the first time. In this way, the systems previously used as analog at DHMI were gathered to be more lean/efficient and functional in an IP-based digital environment. In general, DHMI operators and maintenance staff in the field have given positive feedback that ONUR VCS/VRS systems provide great convenience and additional capabilities especially in terms of use, maintenance and operation.

In addition, as a local company, one of our most important added value areas is our ability to respond to all kinds of support and improvement requests in the shortest possible time.

Aviation Turkey: ONUR Mühendislik won the "New Generation Voice Communication and Recording Systems

Tender", which was conducted by DHMI in 2018, involving the establishment of VCS and VRS systems at 7 airports, as the only domestic manufacturer, because foreign companies refused to bid on a TL basis and the contract took effect on October 19, 2018. Could you please inform us on the latest status of the installation activities and the technical features of the VCS and VRS systems established?

Noyan Dede: After our intense efforts in this project, we have completed the deliveries for 7 airports. With the start of 2020, our systems started to be commissioned.

Our Voice Communication, Recording and Replay Systems installed at the airports have many superior features. For example, the systems are able to support all kinds of telephone and radio interfaces, match the radio systems with phone calls, they allow the system components to be installed at different locations over the network and allow all calls to be recorded with time stamps.

Aviation Turkey: Considering the fact that there are more than 50 airports in Turkey, is it also probable to extend these VCS and VRS systems to other airports? Are there any ongoing talks with DHMI on this topic?

Noyan Dede: This is a very good question. We have established our IP-Based Voice Communication System at 11 civil airports so far. We continue our support activities for such systems on a 24/7 basis.

We have nearly 40 more new airports and we, as the expert in this field in our country, are willing to establish our systems at all of these airports. For the needs that may arise both at airports and air traffic control centers, we expect support from DHMI, as other countries give to their own manufacturers.

Aviation Turkey: What would you like to say about the Factory Technical Training given by ONUR Mühendislik to DHMI personnel for the VCS and VRS systems that will be put in use at 11 airports operated by DHMI? How many personnel have been trained so far? With this training, has DHMI reached the competency level that can perform the maintenance of the delivered VCS and VRS systems on its own? What could you tell us about the training planned for 2020?

Noyan Dede: Within the scope of the projects realized, system maintenance training was given to the maintenance staff located at all relevant airports. In addition, user training was also provided to user operators.

Aviation Turkey: Could you inform our readers about the other projects your company is currently working on in the civil aviation field?

Noyan Dede: I have referred to our projects for 4+7 airports for which we are responsible to DHMI. We are also willing to conduct the modernization project of DHMI for its air traffic control centers and we expect its support to companies having domestic and national solutions. Our systems seamlessly operate under the control of the military airspace of our country. We also want to prove ourselves in the civil aviation field.

Aviation Turkey: In the field of civil aviation, you previously delivered a tower to Erbil Airport in Iraq in full operation, after the supply and integration of all navigation systems. Have you awarded similar contracts abroad during the recent period?

Noyan Dede: As a company with 40 years of experience, we have gained significant know-how and seasoned experience during this 40-year period. Our journey started first with contract work and then it extended to integration and now we develop our own systems.

ONUR Mühendislik is one of the few companies in the world that has the know-how to integrate all systems at airports. We have recently undertaken the integration of ILS systems of Sabiha Gökçen Airport's existing and new

runways and we continue our activities in this project.

We are in search of establishing partnerships with the foreign navigation systems manufacturers, in which ONUR Mühendislik will assume an integrator role.

Aviation Turkey: Could you inform us on the overseas projects of your company that are currently underway or being followed?

Noyan Dede: As I mentioned previously, we have an ongoing project in the Kingdom of Morocco. This export is an important step for us. With this achievement, we are now able to meet the qualification requirements of many tenders. We believe that we can be exceptionally competitive in every region under the conditions of fair competition. Therefore, we keep a close watch on all kinds of tenders appropriate to our conditions, in Eastern Europe, Turkic Republics and the Middle East.

Aviation Turkey: What would you like to say about your company's competence in the field of Cyber Security systems and the ongoing activities?

Noyan Dede: As I previously mentioned, transition of communication systems to an IP-based structure makes them more "vulnerable" to cyber threats, while providing ease of use and flexibility. For this reason, we are working on

new capabilities towards requests received from our users to make our systems more robust and secure against cyber threats.

Aviation Turkey: Could you inform us on the R&D approach of ONUR Mühendislik, which was certified as an R&D Center in August 2016, the number of R&D personnel, the amount of resources allocated to R&D studies and the ongoing R&D activities?

Noyan Dede: Many of the projects executed by our company are R&D projects. All the products that are developed and produced under these projects are indigenous products and incorporate critical innovation.

The majority of our ongoing R&D activities are based on gaining cyber security capabilities to the products that I mentioned earlier.

Aviation Turkey: What would you like to say about ONUR Mühendislik's expectations and goals for the next decade?

Noyan Dede: During the next 10 years, we want to become a regional power center and a global competitor with brand awareness and value in the sector.

Within our company, we aim to achieve a shorter design-production-delivery cycle and further increase customer satisfaction.

Aviation Turkey: What would you like to say about ONUR Mühendislik's participation in domestic and international fairs in 2020?

Noyan Dede: Our top priority is the IDEF fair within the country, but you know it will be held next year, in 2021. Unfortunately, the international fairs we planned to attend were canceled due to the Covid-19 outbreak.

Aviation Turkey: Do you have any messages you would like to convey to our readers?

Noyan Dede: Our Presidency of Defense Industries shows the most determined stance to support domestic and national solutions in our country, and thanks to this stance, many large- and small-scale enterprises, and most importantly, our country has acquired an indigenous product with high added value in its field. Our greatest wish is that other public institutions also give priority to indigenous and national products in conducting their supply plans, with the same sensitive approach

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TURKISH AEROSPACE

Turkish Cargo Achieved the Highest Growth Rate Among the Top 25 Air Cargo Carriers

04 May 2020, Turkish Cargo, the fastest growing air cargo brand in the world, achieved the highest growth rate among the best 25 air cargo carriers with 16.6 percent growth rate, according to the International Air Transport Association's (IATA) Freight Tone Kilometers (FTK) February'20 results.

© Turkish Cargo

Previously ranking 8th in 2019, Turkish Cargo rose to 5th place and increased its global FTK market share to 4.4 percent, while the global air cargo industry shrank by 2.6 percent, according to FTK data, which is the measure of a flight's freight carrying capacity calculated by multiplying the number of tone of freight on an aircraft by the distance travelled in kilometers.

On the successful growth of Turkish Cargo, Turkish Airlines Chairman of the Board and the Executive Committee, M. İlker Aycı stated: "Just like our nation, we are a company that cannot abide losing or giving up. During these difficult days where the only thing we can do is to carry cargo, we are doing our duty to the best of our abilities while doing valuable work for humanitarian and commercial ends. The success of Turkish Cargo shows our commitment to carry our country to a central position in the world for the air cargo sector. Our geopolitical location and available means will help our country to become a more significant player in the air cargo sector following the Covid-19 pandemic. Therefore, we will be marching with surer footing towards our goal of making Turkish Cargo one of the top five air cargo brands in the world by 2023.

Turkish Cargo continues to contribute to the global supply chain

Turkey's national air cargo brand Turkish Cargo continues its operations 24/7 in order to keep the global supply chain intact by carrying food, relief supplies, masks, medical equipment and medicines during the global pandemic of COVID-19.

Turkish Cargo continues to carry much-needed medicines and medical equipment from different continents first to Turkey and afterwards from Turkey to Chicago, Taipei, Atlanta, Sao Paulo, Seoul, New York and Kiev, and to all over the world. The successful brand carried 4,000 tons of medicines and 500 tons of medical equipment during April.


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M. İlker Aycı

Turkish Cargo, which has the 6th largest air cargo carrying capacity in the world, is providing air cargo services with 25 high-capacity freighters to 90 direct cargo destinations, while also reaching 38 destinations, including London, Moscow, Cairo, Shanghai, Bangkok, Doha, Dubai and Casablanca with 19 wide-body passenger aircraft from the fleet of Turkish Airlines.

During this critical period, flag carrier air cargo brand continues to act as a bridge between countries in order to prevent the disruption of global supply chain, operating more than 900 flights in April with cargo and passenger aircraft.

In addition to its contributions towards maintaining the global supply chain, global air cargo brand Turkish Cargo also continues to perform its duty to our nation, supporting our people as the national flag carrier during these difficult days.

THE WORLD'S HEALTH IS IN THE SAFE HANDS OF TURKISH CARGO

AS THE CARGO AIRLINE THAT FLIES TO MORE COUNTRIES THAN ANY OTHER, WE CARRY ALL YOUR HEALTH AND WELLNESS NEEDS, FROM PHARMACEUTICALS TO MEDICAL SUPPLIES WITHOUT EVER INTERRUPTING THE TEMPERATURE-CONTROLLED COLD CHAIN.

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IS THE
AVIATION INDUSTRY
ON THE EDGE OF
COLLAPSE?

by Muhammed Yilmaz

The COVID-19 pandemic continues to spread rapidly and with drastic affects throughout the aviation industry. What ramifications are expected in the short and medium term? Are the strict measures that are being taken by states and authorities adequate? Is the aviation industry on the verge of collapse? Will state aid come into effect...and will it be enough?

Aviation Turkey Magazine Author and Aeronautical Engineer Muhammed Yılmaz has been followed-up the updated information from the outset of the outbreak for our readers. You can find the whole chronological period in our article.

The aviation industry has been coping with unprecedented conditions of uncertainty as passengers want to postpone or cancel flights that they may have booked months ago or to get refunds. Airlines are keeping most of their aircraft on the ground and many large airlines have significantly reduced their capacity, but they still continue to run some "ghost flights" even if there is not a single passenger onboard. Employees have been instructed to take compulsory unpaid leave. Some countries have partially or fully closed their doors to commercial flights. There's been record-breaking losses in the stock market across the globe and the value of airlines have taken a nosedive. Overall, the airline industry's mission to connect world economies has now become secondary to the primary struggle to survive.

The Coronavirus (COVID-19) outbreak first occurred in Wuhan, China in December 2019 and has been detected in over 190 countries so far. On March 11th it was declared a pandemic by the World Health Organization (WHO) with an official announcement by the WHO stating that the rate of the spread of the outbreak was out of control. The global aviation industry, which has been facing various challenges for some time, was immediately and drastically impacted by this situation. The virus, which spreads quickly with no near-term predictions on when it truly it will be under control, has rattled the aviation industry down to its core.

January 2020 data show that flight traffic had the lowest monthly increase in the last decade. Moreover, restrictions on air travel started only after 23 January 2020. The traffic figures recorded in January are thought to be just the tip of the iceberg. The outbreak will seriously test the resilience of the global aviation industry, and this is just the beginning. By the end of 2020, it is estimated that the number of passengers traveling by air will drop for the first time since 2009.

Loss of the Industry could be US$ 314 billion!

The International Air Transport Association - IATA's last statement in mid-April, it was predicted that the revenue loss of airline companies worldwide would reach US$ 314 billion in 2020. This means a 55% loss of revenue compared to 2019. The IATA first announced in February that the loss would be US$ 29.3 billion. Later it increased this figure to US$ 113 billion that the impact on cargo operations could not yet be fully estimated. And then to US$ 252 billion. Therefore, it was recorded to be more than a tenfold increase between the first and last estimates.

In the statement of the IATA, it is noted that the world is heading for a recession. The economic shock of the COVID-19 crisis is expected to be at its most severe in Q2 when GDP is expected to shrink by 6%. Passenger demand closely follows GDP progression. The impact of reduced economic activity in Q2 alone would result in an 8%decline in passenger demand in the third quarter.

As per the IATA's statement, it is noted that the number of flights globally was down 80% as of early April. Going back to normal in air traffic

will take more time and be slower than expected. Domestic markets may see the start of an upturn in demand in the third quarter. International markets, however, will be slower to resume as it appears likely that governments will retain these travel restrictions longer. The upward trend in the international market is expected to begin in the last quarter of the year at the earliest.

It was noted that airlines could burn through US$ 61 billion in cash reserves in the second quarter alone and that puts 25 million jobs at risk that are dependent on aviation.

According to IATA, the crisis will lead to various consolidations on the airline side and will they have to layoff airline staff. Aircraft manufacturers will also seriously suffer from the crisis due to the order delays and cancellations.

The global airlines association also reiterated the call that governments should step in immediately, as the average airline has enough money to cover its fixed costs only for up to two months. With the emphasis that there is an increasing liquidity crisis in air transport, countries affected by COVID-19 now represent 94 percent of the global air transport market. With daily travel restrictions and the closing of borders, the market demand for air travel fell to critically low levels.

Alexandre de Juniac: "Like a war, COVID-19 has Brought Death and Economic Devastation."

We have never seen a downturn this deep before. In our latest scenario, full year passenger revenues plummet 55% compared to 2019, while traffic falls 48%. In other words, half our business disappears. That's catastrophic.

That impact is then amplified throughout the economy. If airlines lose one job, another 24 disappear somewhere in the value chain. That was behind our analysis last week when we said that some 25 million jobs are at risk.

That is also why we continue to ask governments to make the viability of airlines a priority. In the last week we have seen governments in Belgium and Sweden respond with relief measures. We know that several others are considering such steps. I encourage them to move quickly. This industry will run out of cash soon, so support of any kind will be a lifeline. These include:

•Direct financial aid

•Loans, loan guarantees and support for the corporate bond market by governments or central banks; and

•Tax relief

Turning to the lifting of mobility restrictions, there has been some positive news in Europe where a few governments have seen progress against the disease improve to the point where they are beginning to re-open their economies. We can all be encouraged by this.

I must point out, however, that the easing of lockdown measures, as far as we have seen, does not include a re-start for aviation. And, individual country decisions cannot enable the restoration of international air services when other markets remain closed.

Furthermore, China and South Korea--countries which have been successful in controlling the disease within their own borders-- are now doubling down on international travel restrictions because they don't want to risk importing a second outbreak.

Governments re-opening their economies must have confidence that the disease is also under control in the countries they do business with. Otherwise they are not going to make travel easy or convenient.

Passengers—business or leisure—will also need to have their confidence restored.

•They won't return to travel until they feel personally safe in doing so.

•They will need to have confidence that their travel will not be interrupted by the disease or by quarantine restrictions,

•And they must have confidence in the economic situation.

I don't underestimate the challenges that are ahead. The keys to success, however, are well-known in the aviation world—cooperation and harmonization.

Successive unilateral actions by states can shut down aviation as we have seen. But unilateral actions cannot restart aviation. Governments must work with each other and together with the industry.

I emphasized that in a presentation to the ICAO Council last week. And this is the main idea driving the regional meetings with governments and stakeholders that we are planning to begin next week.

There is much more to learn about COVID-19. So, we don't expect to see immediate re-start solutions from our efforts. What is important, however, is that we have the best minds in the world focusing together on solving the challenges that COVID-19 has brought to the global air transport system.

This week we are reminded of the precedent for industry and government cooperation in the face of enormous challenges. The Chicago Convention was signed and ICAO was founded by governments in December 1944. With that, the regulatory framework for the post-war system for global air transport was created, even as World War II raged.

A few months later, airlines joined together to help governments in turning that framework into the industry that we have today. IATA was founded on 19 April 1945. That's 75 years ago this week.

That's very similar to the call to action we have today. Like a war, COVID-19 has brought death and economic devastation. And even though the end-game for COVID-19 is not yet clearly visible, it is absolutely clear that we must work and plan for it together.

Air Tahiti Nui - Boeing 787-9 Dreamliner

The epidemic also brought out a truth about the industry: The high profitability situation in the industry over the past decade covered around 30 small airline groups and investor companies; It was once again seen that a majority of airlines were very fragile in structure.

Although the current decline in oil prices is expected to cushion the industry up to $US 30 billion annually, revenue losses due to the crisis are much higher. It is thought that the protection steps taken to prevent the further spread of the pandemic, which is especially prominent in Europe, will further delay the positive effects that oil prices may provide.

EU261 changed

The European Commission decided to classify Covid-19 as "extraordinary conditions" under the EU passenger rights regulation EU261. This means that airlines will not have to pay compensation for travel restrictions and canceled flights and delays due to coronavirus!

The European Commission announced that the temporary suspension date of 80-20 "use it or lose it" rule was postponed until the end of October 2020.

US bans all flights from Europe!

While the outbreak spread rapidly in Europe, especially in Italy and Spain, it raised anxiety within the US administration. US President Trump said that they have implemented very strict measures, citing the increase in the number of cases in European Union countries because of fact that they were late in implementing outbreak response measures.

Travel between 26 European countries and the US has been suspended for 30 days. The US President`s statement came after the WHO's official declaration of a global pandemic.

Within the scope of this restriction which entered into force on Friday, March 13th at 23:59pm, flights to the US from 26 European countries (Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and Switzerland) were suspended. The UK and Turkey were excluded from the travel ban. In addition, cargo flights are exempt from the European ban.

Trump's ban changed the record for the longest flight!

Trump`s decision to ban flights from the European Union to the USA for 30 days due to the coronavirus caused the world`s longest flight record to change.

Air Tahiti Nui operated flights between Papeete, the capital of French Polynesia and Paris, with a San Francisco transfer until last week. After the ban, the decision was made on March 15th to make the flight non-stop. The 15,715 km flight was carried out with a Boeing 787-9 Dreamliner aircraft and took 16 hours and 20 minutes. The world`s longest commercial flight record was broken on this flight. Moreover, since the departure and arrival points are French land, this is technically accepted as a domestic flight.

The maximum range of the Boeing 787-9 Dreamliner aircraft is 13,950 km. During this record flight, the plane was below full load and passenger capacity. In addition, the dominant winds blowing in the east helped the flight to be completed successfully. Therefore, it is not possible to make the return of flight with the Dreamliner.

The current longest commercial flight in the world was the distance flown between Singapore and Newark, which I have had the chance to experience. This distance record has now been improved by 321 km.

Aircraft being grounded, leased aircraft being returned!

Lufthansa Groups Aircrafts has temporirly grounded for a while.

Airlines across the world are reducing or suspending their flights to minimize losses due to low demand. Airbus A380 and the Boeing 747 are likely to become the first aircraft casualties of the ongoing global crisis as the airline industry continues to shrink by the worldwide lockdown.

Airlines are expected to switch to flying fewer, smaller aircraft – with the infection said to have accelerated the demise of the world's largest passenger planes. These are the relatively new Airbus A380 and the Boeing 747-400. We probably will never see a passenger 747 flying again and see only A380s of Emirates in the near future.

On March,8, German flagship carrier Lufthansa grounded at least 150 aircraft and reduced flight operations by 50%. 14 Airbus A380s in the fleet are amongst those grounded. As from March 23, around 700 of Lufthansa Group's 763 Aircrafts are temporarily grounded.

The company management applied for Kurzarbeit, which involves the government offsetting wages lost when companies are forced to temporarily halt activities.

One of the countries most affected by the outbreak has been South Korea. Korean Air, the national airline of South Korea, one of the top 5 countries where all airlines have stopped their flights completely (others are China, Italy, Iran and Iraq), grounded 90 aircraft in its fleet, including 10 Airbus A380s. Korean Air expects that the flights will become normalized soon. If the situation persists for a longer period, the company`s senior management is concerned that they may reach the threshold where the airline cannot guarantee its survival. The airline runs its cargo operations with passenger aircraft to diversify cargo routes and reduce aircraft parking fees.

LOT Polish Airlines, the national airline of Poland, announced in January that it will buy Condor Airlines prior to the outbreak spread in Europe. However, it is said that the outbreak will also negatively affect this acquisition and that the Polish Airline will withdraw from this process. The parties will come together for the last time and announce the final decision.

Airlines are taking additional supportive decisions other than canceling flights and grounding aircraft to proceed with less damage. For example, they are returning leased aircraft in their fleet even while the lease period was still active. In addition, projects for fleet renewal and aircraft retirement, which are planned to be realized in the long term, are being brought forward. For example, American Airlines will retire 16 Boeing 767s in its fleet by the end of May and 34 Boeing 757s in the fleet will be retired by the end of the 2021 summer season.

Irish-based budget airline Ryanair has decided to ground the majority of the 450 Boeing 737-800 aircraft in its fleet and largely suspend their flights.

The three global alliances - StarAlliance, SkyTeam and OneWorld – jointly called for government aid to support this extraordinary situation.

Air France-KLM Group has decided to reduce flight operations by 70-90% and ground all Boeing 747 and Airbus A380 aircraft in the fleet.

American Airlines suspended nearly all long-haul international flights after Trump`s flight ban decision.

The Singapore Airlines Group canceled 96% of its full capacity by the end of April. 138 of 147 aircraft in the Singapore Airlines and Silkair fleet have been grounded. Of the group`s low-cost brand Scoot, only 2 of the 49 planes are

flying! Singapore Airlines canceled all Singapore-Istanbul flights in April 2020.

Singapore Changi Airport, which is one of the most important transfer centers, closed its doors to all transit passengers on Tuesday, March 24.

In line with the new decision taken by the UAE administration, the country`s 4 airlines, Emirates, Etihad, FlyDubai and Air Arabia have grounded all aircraft in their fleet and stopped all flights, including transit, for at least 2 weeks. It was the first time in the history of this country!

Australia`s flagship carrier, Qantas, have attempted to "survive" like all airlines because of the negative impact of the Covid-19 outbreak on the global economy. The airline postponed the decisions to be announced for the "Sunrise Project" until the end of March 2020 and 12 orders planned for the Airbus A350-1000 for the project.

Australian Qantas and the KLM Royal Dutch Airlines conducted their last commercial flights with the iconic jumbo jet Boeing 747-400 also known as the Queen of the Skies. Both airlines had included the first 747 to their fleet in 1971. Both airlines were planning to retire Boeing 747s from their fleets in 2021.

József Váradi, CEO of Budapest-based Wizz Air, one of Europe's largest low-cost airlines, stated that they would like to turn the crisis into an opportunity by expressing its commitment to stand by the aircraft delivery programs. It was announced that in 2020, the delivery of 15 new Airbus aircraft would be taken over and would be included in the fleet as per the order schedule.

Vietnamese airline VietJet has taken an interesting step: They decided to pay £ 7,300 to passengers if they catch coronavirus after flying with them between 23 March and 30 June 2020. Domestic flights will also be covered.

Qatar Airways, unlike other airlines, has announced that it will add 10,000 extra seats to its flight network. Having decided to make extra flights from Doha to Paris, Perth and Dublin, it flies the A380 aircraft in its fleet to Frankfurt, London Heathrow and Perth. It also provides charter flight services from the US and Asia to Europe. The airline has also started flying to Brisbane for the first time in its history. Unlike other airlines in the world, Qatar Airways still flies to 75 destinations, with a daily average of 150 flights, including the US. On 6 may, according to the latest official statement of Qatar Airways that plans to grow its network back to over 50 destinations resuming services to cities such as Manila, Amman, and Nairobi in end of May. A further number of destinations are planned to be added by the end of June.

Doha has become an important transit hub after the major hubs such as Dubai, Abu Dhabi, Singapore Changi and Hong Kong closed their doors to all transit passengers.

A strong PR strategy such as creating a positive perception of the global consumer and increasing passenger loyalty during the pandemic period is also thought to be a strategy behind the decision of Qatar Airways to continue its flights. The airline's activities on social media with hashtags like #takingyouhome are considered as the most important sign of this strategy during this process. Qatari flag carrier Qatar Airways has carried over one million people home Since mid-February as part of the repatriation flights during ongoing

Pandemic crisis. The airline has also transported over 70,000 tons of medical equipment and aid relief worldwide.

The Covid-19 pandemic brought back an earlier practice in the aviation industry. The UK announced that it is preparing to deploy flight attendants who have medical training in hospitals to be built for the fight against Covid-19 outbreak. Then, similar practices started to be implemented in many countries and airlines. These were the first flight attendants in history who were also nurses!

British Airways has suspended work for 36,000 of its workers as unpaid leave. An application was made to fund 80 percent of wages by the government's job retention scheme.

The UK-based easyJet, one of the world's largest low-cost airlines, has decided to ground its entire fleet of aircraft due to unprecedented travel restrictions.

Lufthansa, the flag carrier of Germany has decided to downsize its fleet due to the ongoing Coronavirus crisis. The airline removed 6 x Airbus A380; 7 x Airbus A340-600; 5 x Boeing 747-400; 11 x A320 at Lufthansa; and 10 x A320 at Eurowings. Also, it was decided to close Germanwings, one of the subsidiaries of the group.

Etihad started testing the new technological

self-service device called Elenium at Abu Dhabi Airport, which can monitor passengers' temperature, heart rate and respiratory rate. Thanks to the new technology, passengers with potential symptoms of illness, especially Coronavirus, can be identified at the beginning of travel.

Dubai-based Emirates, by breaking new ground among airline companies, started testing passengers for Covid-19 before flights. Blood tests are conducted in coordination with the Dubai Health Authority and results are available within 10 minutes.

Canadian WestJet, which has grounded three-quarters of its fleet, announced that it would lay off 1,700 pilots due to Covid-19.

The British low-cost airline easyJet CEO said that they would keep middle seats empty to follow physical distancing rules once Coronavirus travel restrictions are lifted. Ryanair CEO stated that the airline would not fly if it was forced to keep middle seats empty.

Russian national flagship carrier Aeroflot announced that it has suspended all international flights until August.

Portuguese charter airline Hi Fly flew 12,338 kilometers in 16 hours with the Airbus A340-300 between Montevideo, the capital of Uruguay, and Melbourne, Australia, and broke the A340's longest flight record. 128 of the 217 passengers in the record flight were Corona positive.

The funding request of South African Airways (SAA) at an amount of RB 10 billion was rejected at the beginning of the month and SAA announced that it had to liquidate most of its assets for debts and severance payments. The company, which has taken action to terminate the contracts of all its employees by the end of the month, is expected to go bankrupt.

Emirates announced that scheduled flights would not resume until the beginning of July.

Norwegian Air announced that 4,700 pilots and crew members were laid off and its Swedish and Danish subsidiaries filed for bankruptcy.

Airbus and Boeing take position for the crisis

Airbus management announced some measures to support its financial position in the light of the economic difficulties caused by the global outbreak on March 23. The measures included a loan mechanism of 15 billion Euros ($ 16.1 billion), the withdrawal of

the 2019 dividend offer and the suspension of pension funds. Airbus has also announced that the previously set targets for 2020 will be revised. Production continues partially due to the fact that personnel have to maintain social distance and work programs have been loosened in all Airbus plants in France and Spain.

American manufacturer Boeing negotiated with the US administration for a $ 60 billion financial aid package to secure itself and its suppliers. A liquidity injection is believed to help the group survive and to keep the supply chain afloat if airline companies delay or cancel aircraft deliveries.

The delay in deliveries of airline orders are occurring because airline companies want to maintain their own cash balance, and this has increased pressure on Boeing, which is already in a deadlock due to the 737 MAX crisis. Boeing also joined the US airlines' call to Congress and the White House to save themselves. Boeing made a $ 60 billion request from the U.S. government. This was said to be requested in the form of government-backed loans, but it is also said that they want some grants that do not need to be repaid.

Boeing management said that most of this money will be transferred to the supply chain. The commercial aviation industry employs about 536,000 workers in the US. To prevent some small suppliers from having to leave the system, President Donald Trump said, "We have to help Boeing."

However, if Boeing is given the amount demanded as a loan, it is expected that the company`s total debt will reach 100 billion dollars. In the short term, the company has a liquidity concern; How to deal with such a huge debt burden is a big question mark.

Boeing also announced that production in the Puget Sound region in Washington State was stopped for 14 days. (March 25th.)

Boeing closed its South Carolina plants where the 787 Dreamliner is produced, until further notice. The employees were given paid leave for 10 days, but the next stage is uncertain for now.

European manufacturer Airbus partially restarted production and assembly activities in France and Spain on March 23rd after a four-day shutdown for health concerns over Coronavirus. The production activities in the wing plants at Filton and Broughton in the UK and at Bremen in Germany were suspended for 3 weeks.

On March 29th the Spanish Government decided to halt activities that are not fundamental throughout the country. For this reason, the European manufacturer Airbus stopped most of the

production at its plants in Spain. However, Airbus produces face shields that provide personal protection to healthcare personnel in the fight against Covid-19 with more than 20 3D printers in its plants. The German side of Airbus announced that they have also become involved in this project.

Production activities at the facility in Mobile, Alabama in the US, where Airbus manufactures the A220 and A320, have been temporarily paused.

Due to airlines seeking to defer deliveries, it was decided to significantly reduce production in the A320 family and A350 aircraft. Negotiations with the suppliers continue. There will be delays also in the A321XLR program. It will produce forty A320s, two A330s and six A350s per month.

Airbus has shelved plans to establish a new production line in Toulouse for the final assembly of the A321neo aircraft due to reduced demand caused by the pandemic. This means that the production growth that has been going on for 8 years for Airbus' best-selling narrow body aircraft family has reversed.

Airbus has also postponed its plan to ramp up of its A220 production from four to ten planes per month in Canada's Mirabel facilities until mid-2021.

The first victim of the outbreak is Flybe

For giant global airlines with sound financial standing, reducing capacity and grounding aircraft is a strategy used in order to cope with such a crucial crisis. However, this and other similar crises will not hesitate to polish off airlines with vulnerabilities.

Founded in 1979, the UK-based and Europe`s largest independent regional airline, Flybe canceled all its flights and filed for bankruptcy. The airline, which has been striving to overcome its financial problems for a long time, was faced with a dramatic end after the UK government refused to lend £100 million.

The airline, which was unable to overcome funding challenges, became the first airline to terminate operations as a result of the severe impact of the COVID-19 outbreak, which also continues to affect the entire world.

Financial incentive decision from the Chinese government to airlines

The Chinese Ministry of Finance and the Civil Aviation Administration of China (CAAC) have taken action to provide financial support to airlines that have suffered greatly because of the COVID-19 outbreak affecting the entire world. Direct cash incentives will be applied until June 30, 2020 in order to enable domestic and foreign airlines to continue their operations to or from China.

The amount of incentives to be given to airlines that do not halt or have resumed their international flights to China during the epidemic was as follows: 0.0176 yuan per seat kilometer for the co-operated air routes, and 0.0528 yuan per seat kilometer if the route is covered by a sole airline.

Rules for stopping ghost flights are loosened

With the Coronavirus/ COVID-19 outbreak that has paralyzed and brought air traffic to a halt all over the world, a new concept has emerged: “Ghost Flight”.

In order not to lose slots on certain routes, the flights of airline companies that do not have even a single passenger onboard are called ghost flights. Airlines face the risk of losing their `slots` at airports if they fail to perform their operations, adhering to 80% of the scheduled and determined flight schedules within a flight year.

One of the most noteworthy examples was the British Airways flight between London and Cardiff in the past few days, which had no passengers. As the airline

did not want to risk losing the slot worth nearly £ 2 million at Heathrow Airport, it conducted the flight, albeit empty!

The European Commission and the Federal Aviation Administration (FAA) decided to waive rules that led airlines to make `ghost flights` in order to ease the impact of the outbreak on the economy. European Commission President Ursula von der Leyen announced that the rule described as `use it or lose it` will be temporarily waived. Airlines felt relieved on this decision. Flight rules were previously suspended during the September 11 attacks, the SARS outbreak and the 2008 financial crisis. Underneath the `use it or lose it` rule, there lies a fairness objective which provides a chance for relatively smaller airlines to have equal operating conditions when operating alongside major airlines at the most demanded giant airports.

What is the latest status in Turkey?

The Turkish aviation industry has also suffered greatly from the devastating effects of the outbreak.

In addition to the suspension of flights to/from China as of February 3, 2020, flights to/from Iran on February 24 and South Korea, Iraq and Italy on March 1 were suspended. Following the spread of virus in mainland Europe, all flights to a total of 9 more European countries (Germany, France, Spain, Norway, Denmark, Belgium, Austria, Sweden and the Netherlands) were also suspended. Minister Turhan (former Minister) announced that flights to were suspended until April 17 beginning from March 14, 2020, 08:00am. It was also stated that this period could be extended or brought forward.

On March 16, flights to Switzerland, Ireland, Saudi Arabia, Egypt and the United Arab Emirates were also suspended.

Another Turkish company, Corendon, has decided to stop its flights until April 17.

Turkish Airlines has delayed the delivery of the first Airbus A350 to be added to its fleet.

Turkish Airlines announced that it will stop all international flights as of March 27th apart from the Hong Kong, Moscow, New York, Washington and Addis Ababa.

Turkey added 46 more flights to countries to the

list of stopped flights on March 21st as a protective measure against the effects of the virus. The current list of countries where flights are stopped: Kuwait, Bangladesh, Mongolia, Turkish Republic of North Cyprus, Ukraine, Kosovo, Morocco, Lebanon, Jordan, Kazakhstan, Uzbekistan, Oman, Slovenia, Moldova, Djibouti, Equatorial Guinea, Canada, India, Hungary, Guatemala, Poland, Kenya, Sudan , Chad, Philippines, Latvia, Taiwan, Peru, Sri Lanka, Ecuador, Niger, Tunisia, Algeria, Ivory Coast, Finland, Angola, Czechia, Dominican, Cameroon, Montenegro, Colombia, North Macedonia, Mauritania, Nepal, Portugal and Panama.

Turkish President Recep Tayyip Erdogan announced that all scheduled international flights have been stopped effective as from midnight on March 27, 2020. Domestic flights were subject to the local authorities' approval. Cargo flights were excluded.

It was decided upon to conduct domestic flights to Samsun, Trabzon, Erzurum, Van, Diyarbakır, Malatya, Gaziantep, Kayseri, Konya, Adana, Antalya and Izmir over Istanbul and Ankara only by Turkish Airlines. The first flight after the decision was made from Istanbul to Ankara and Samsun. All flights were conducted with half the passenger capacity, at most, to maintain social distance. Passengers were seated by leaving at least one empty seat between them.

After the first announcement made by the President, Turkish Airlines announced that ticket sales and online check-in via its website and mobile application were suspended until April 17, 2020. However, with a new statement, it was announced that the period was extended to May 1st .

Such a decision has resulted in the grounding of all aircraft in the fleets of airlines conducting scheduled flights such as Pegasus, Sun Express, Onur Air

Are aircraft infected?

Airline companies claim that they are continually disinfecting their aircraft and 99.97% of all viruses have been neutralized through HEPA filters in ventilation systems. Therefore, they all agree that the risk of virus infection on the plane is much lower than in any other indoor environment.

However, the situation does not seem as innocent as the airlines claim! The humidity of the air we breathe in the aircraft is around 10%. This causes mucus in our throat and nose, which is our body `s first line of defense, to dry out. In a sense, our defense system becomes weakened in this type of environment. It creates an ideal breeding ground for microbes to take hold of our bodies and to spread.

Planes contain thousands of microbes not only because of the dry, unhealthy circulating air in the cabin, but also due to the surfaces such as tray tables and lavatory fixtures that we touch.

Researchers from Emory University, Georgia Institute of Technology and Boeing conducted 10 different test flights, ranging between 3.5 and 5 hours, to analyze the risks of infection that can be transmitted directly by droplets.

In this case study the risk of infection via passenger movement was tracked through an iPad app. The spread of viruses through a passenger in the cabin was simulated.

As a result, it turned out that there are two main factors influencing the risk of infection on the plane: How often passengers interact with each other and how often they leave their seats.

Analyzes showed that those who travel in the front and back seats of a diseased passenger on the plane are 80% more likely to become infected. Fortunately, the risk of infection for other passengers was observed to be only 3%.

The study also measured the possible effects of an infected flight attendant on board. The results were as predicted. It was seen that the presence of a sick flight attendant on board put many more passengers at risk, because the flight attendant continually moves on the aircraft and interacts with a lot of passengers. The flight attendant was, so to speak, disseminating the disease.

Another remarkable result derived from the studyw was that people sitting in window seats and not leaving their seats during the flight were less at risk. Therefore, if you are going to travel by plane these days, perhaps the first thing you need to do to protect yourself against virus exposure is to take a window seat and complete the flight without leaving your seat if it is a short distance flight.

and charter flights such as Corendon, Tailwind and Free Bird.

Sabiha Gökçen, Dalaman and Bodrum Airports were also closed.

Following the announcement made by President Erdogan on April 3rd regarding the entry and exit ban to/ from 30 big cities and Zonguldak, domestic flights were completely stopped.

President Erdogan announced on April 6th that Atatürk Airport and Sancaktepe Military Airport will be converted into 1,000-bed hospitals.

Pegasus Airlines announced on April 13th that it has canceled all its flights between 1st of May 2020 and 15th of May 2020 in line with the additional precautions to combat Covid-19.

Turkish Airlines announced on April 14th that all domestic flights have been cancelled until May 1, 2020, and all international flights until May 20, 2020.

SunExpress started cargo operations with passenger aircraft. Passenger cabins of 18 Boeing 737-800s in the fleet have been arranged to maximize capacity. Planes are now able to carry a maximum load of up to 21,700 kg.

On the verge of recession, share buyback process started

The dramatic plunge continues in world stock markets and it is said that some stock markets may crash. While the crisis deepens, economies are on the verge of a global recession and new bankruptcies are likely to occur in the aviation industry, which is already in crisis, with a domino effect. Estimates signal that the World GNP will decline by 0.5 to 1.5%.

As of early March, the revenue loss anticipated in the aviation industry in Turkey is estimated to be US$ 100-120 million and this amount is expected to further increase with the persistence of the crisis. Losses are not limited to passenger transportation. Decrease in commercial activities also affects cargo airlines. As a result of a study conducted by the OECD on such negative developments, it has called on governments to delay tax debt payments and to provide liquidity to the markets.

On the other hand, after the sharp decline in the stock values of all companies operating in the aviation industry, it has been observed that the buyback process has started.

The Board of Directors of Turkish Airlines approved the `Share Buyback Program` on March 9, 2020 to ensure the regain of its own shares. Accordingly, up to TL 1 billion 500 million worth of shares will be repurchased.

TAV Airports also decided to buy back shares on March 12, 2020 up to TL 200 million to demonstrate that they stand behind the company.

How to avoid a virus on onboard

Keep your hands away from your eyes, face, and don't touch surfaces that all passengers can touch. Try not to touch seat armrests, tray tables, in-flight entertainment system screens, remote controls, overhead cabinets, toilet doors, in other words, if possible, anything on the plane. If you are sitting next to a sick passenger, try not to position yourself face to face with them, disinfect your hands with wet wipes and special solutions as much as possible. Always wear a mask that covers your mouth and nose during the flight. Never turn off the ventilation above your seat. Gargle with special fluids to help kill germs and keep your throat moist, especially on long flights. To strengthen your immune system, start taking a standard multi-vitamin a few days before your flight. Keep away from the pillows and blankets distributed by the flight attendants and if necessary, bring your own from home in a protective bag. And most importantly, drink plenty of water to make sure you are hydrated throughout the flight in order to boost your immune system.

Coronavirus also Misleads Weather Forecasts!

The fact that commercial passenger flights have come to a stopping point due to the COVID-19 pandemic has become a challenge for meteorologists, as weather forecasts models are based on temperature and wind data collected from thousands of aircraft in the sky!

Commercial passenger aircraft automatically send meteorological data obtained via various sensors during flight to ground stations through communication systems. The U.S. National Oceanic and Atmospheric Administration - NOAA supports its weather forecast software with more than 250 million annual measurements obtained from aircraft. However, experts now have concerns because as of the end of March, meteorological data from aircraft have declined by half due to the sharp drop in air traffic.

According to the World Meteorological Organization, the in-flight measurements are a key source of information both for weather forecasts and for monitoring climate changes. The Geneva-based organization declared that thousands of aircraft in the fleet of 43 airlines contributed to the Aircraft Meteorological Data Relay Program (AMDAR), and they produced and shared more than 800,000 observations daily on issues such as air temperature, wind speed and direction, humidity and even turbulence.

The airlines have grounded nearly all aircraft in their fleets throughout the world due to the travel restrictions caused by the ongoing coronavirus outbreak and the reduction in flight demand has considerably reduced the data obtained. The World Meteorological Organization reported that the data obtained from aircraft fell by 50%-80% in many parts of the world, particularly in Europe and the U.S.

This decline is also anticipated to have a negative impact on the quantity and quality of weather forecasts. The continuation of such a significant loss of data from aircraft and the expansion of regions where this becomes unavailable may create a gradual decrease in the reliability of weather forecasts.

What kind of data is used for weather forecasts?

The World Meteorological Organization collects a wide variety of data from satellites, ground stations, ground tracking systems and marine-based stations, in addition to aircraft in order to forecast the weather. While satellite data provides a lot of information about temperature and humidity, it provides less information about wind. The European Center for Medium-Range Weather Forecasts (ECMWF) says the aircraft data comes in second, behind satellite data. However, satellite wind observations recently integrated in the system will help compensate for the drop in the number of aircraft-based observations. Furthermore, even though there is a significant decrease in commercial passenger flights, the ongoing cargo and evacuation flights continue to be used to obtain data, albeit limited.

It is thought that removing all aircraft data degrades forecasts by up to 15%. Some EU member states are exerting efforts to receive more data by sending more radio and sound waves to high altitude balloons to conduct meteorological readings to compensate for the lack of data from aircraft, especially in Europe.

Coronavirus reduces manual data entry as well

Of course, not only the U.S. and Europe, but also other parts of the world are at risk. The majority of ground monitoring stations automatically send data to weather forecast units. However, in many developing countries, data is manually obtained by observers. In some countries, there are almost no radar stations available.

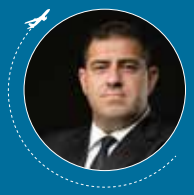
The World Meteorological Organization reported that a substantial drop in the number of manual observations has occurred since the start of the outbreak. The reduction in such data flow due to the pandemic may cause some disruptions in early detection of meteorological events and disasters, such as floods and hurricanes, which is unfortunately not a desirable thing for our planet.

Impact of flight data on weather forecasts

A test was run in 2019 on weather forecasts to measure the impact of data obtained from aircraft. The difference between the reports not involving aircraft data and the reports involving all related data was revealed.

The greatest difference between forecasts was observed in the data obtained from the aircraft at the standard cruising altitude of 10 and 12 km. Geographically, the biggest difference between the reports was in the northern hemisphere for both wind and temperature forecasting.

According to experts, removing half the aircraft data from weather forecasts would be expected to give slightly less than half the impact of removing all aircraft data. Briefly, the more aircraft data that is involved in reporting, the better, as it will lead to better forecasting results



by Saffet Uyanik

Cashflow Catastrophe Seals the Aviation Industry's Fate

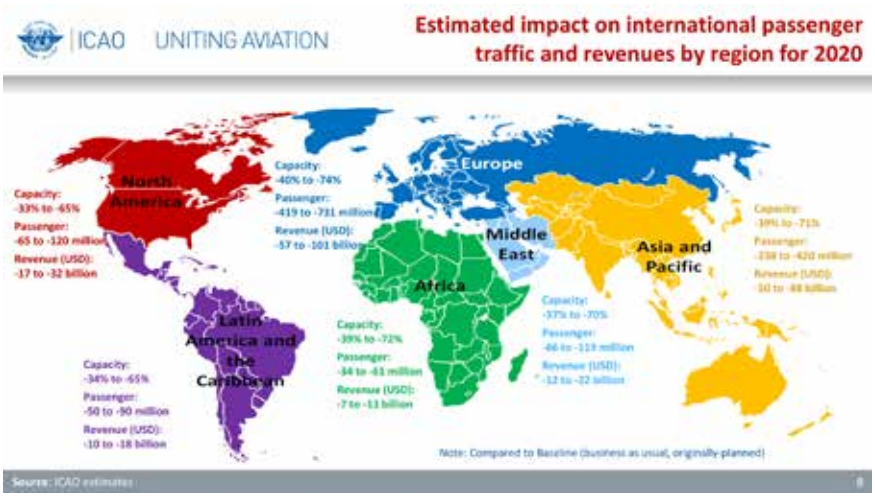
ICAO, IATA, ACI, ITF, EUROCONTROL, ECAC, all related international organizations and associations of Aviation have been respectively published best & worst-case scenarios about the future of the global aviation sector from the outset of the outbreak. How these crises could be affecting the Aviation world?

The aviation industry is one of the sectors hardest-hit by the Novel Coronavirus (COVID-19) outbreak. When the outbreak of COVID-19 began to spread, many countries declared a state of emergency, imposed quarantines, and other restrictions for citizens of the most affected areas and tried to prevent their citizens from traveling overseas. Amid the health and humanitarian crisis, governments have closed borders and requested or forced people to stay home in an effort to stop the spread of the pandemic.

As a result of COVID-19 airlines around the globe had to suspend passenger flights and cut schedules significantly. Due to the resulting travel restrictions as well as significant reductions in passenger numbers, some of the world's biggest airlines turned their focus to cargo to produce fractional revenue.

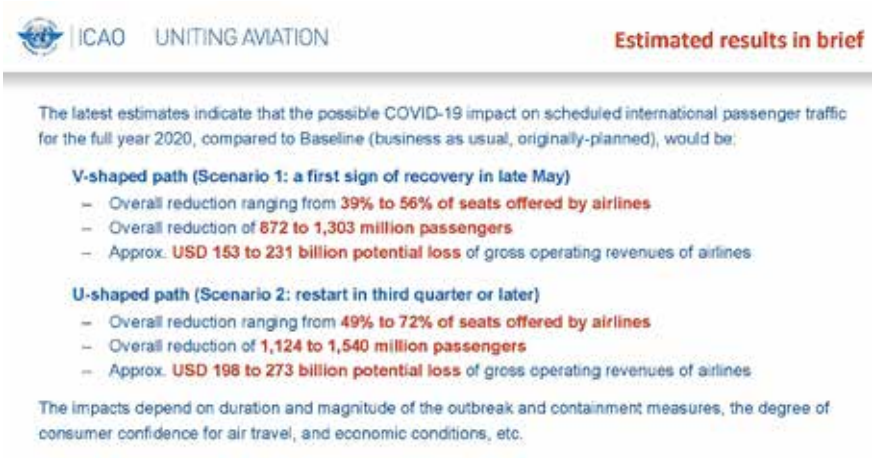
According to the International Air Transport Association (IATA), airlines transport over 52 million metric tons of goods a year, representing more than 35% of global trade by value but less than 1% of world trade by volume. That is equivalent to $6.8 trillion worth of goods annually, or $18.6 billion worth of products every day. This is not a typical situation for airlines; yet, as they are unable to fill planes with passengers, airlines are instead using whatever capacity they have, to transport more cargo, such as medicines to the regions most affected by the public health crisis as part of the global supply chain.

The earnings from passenger operations may have almost vanished during this time of the COVID-19 pandemic, but global supply chains still demand aircraft cargo capacity. Thus, airlines have innovated and converted planes that are normally used to transport passengers into freighters. Since the beginning of the novel coronavirus crisis, cargo demand has only risen as simple goods or medical necessities such as face masks, protective gear, gloves, and disinfectant quickly became scarce commodities. However, the global air freight market demand measured in cargo ton kilometers (CTKs), decreased by 3.3% in January 2020, compared to the same period in 2019; while the cargo capacity, measured in available cargo ton kilometers (ACTKs), rose by 0.9% year-on-year in January 2020. Over 200,000 passenger flights have been canceled since the end of February in response to government travel restrictions. With this, vital cargo capacity has disappeared when it is most urgently needed in the fight against COVID-19.



Because of this crisis which has spanned the entire globe, the likes of which has never been faced before in civil aviation history, we are already seeing losses that are hard to recover. On 14 April 2020, the IATA released an updated analysis showing that the COVID-19 crisis will see global airline passenger revenues drop by US$314 billion in 2020, a 55% decline compared to 2019, under a "3-month lock-down + recession" scenario and a 48% decline in Revenue Passenger Kilometers (RPKs, both international and domestic) in 2020 compared to 2019. Airlines in the Asia Pacific region are expected to see the largest revenue drop of US$113 billion in 2020 compared to 2019 with a 50% drop in passenger demand in 2020 compared to 2019.

Due to this sudden loss of revenue, airlines began to hold out against refunding canceled flights and tickets to conserve cash while European airlines owe US$10 billion for canceled flights. In a joint statement addressing this deteriorating situation, the International Air Transport Association (IATA) and the International Transport Workers' Federation (ITF) called for governments



to ensure that the protection of health workers caring for those with COVID-19 is prioritized, to coordinate between each other and with industry to ensure harmonized and effective action to protect the safety of passengers and crew, to provide immediate financial and regulatory support for airlines, to maintain the sustainability of terms and conditions for air transport workers, and to assist the industry in restarting quickly by adapting regulations and lifting travel restrictions predictably and efficiently.

According to the IATA, global air passenger demand plunged 70%, and industry revenues from the passenger business are forecast to be reduced by at least $252 billion in 2020. Airlines are expected to burn through some $61 billion in cash reserves during the second quarter of 2020 alone. In April, both the European Commission and the US Department of Transportation stated that airlines are still obliged to offer refunds for canceled flights. This has created a profound liquidity emergency for airlines. The impact of the near shutdown of passenger services threatens the viability of 25 million jobs directly and indirectly dependent upon aviation, as well as the tourism and hospitality sector.

The air transport industry supports a total of 65.5 million jobs globally. It provides 10.2 million direct jobs. Airlines, air navigation service providers, and airports directly employ around three and a half million people. The civil aerospace sector (the manufacture of aircraft, systems, and engines) employs 1.2 million people. A further 5.6 million people work in other on-airport positions. Another 55.3 million indirect, induced, and tourism-related jobs are supported by aviation.

One of the industries that relies most heavily on aviation is tourism. By facilitating tourism, air transport helps generate economic growth and alleviate poverty. Currently, approximately 1.4 billion tourists are crossing borders every year, over half of whom travelled to their destinations by air. In 2016, aviation supported almost 37 million jobs within the tourism sector, contributing roughly USD 897 billion a year to global GDP.

When assessing the economic impacts on civil aviation, the International Civil Aviation Organization (ICAO) expects an overall reduction of international passengers ranging from 44% to 80% in 2020 compared to 2019 as

well as an estimated loss of two- fifths of passenger traffic and 45% or over US$76 billion airport revenues in 2020 compared to previous business results. The ICAO currently reports that the first quarter of 2020 has seen an overall reduction ranging from 39% to 41% in passenger capacity, or a decrease of 16.4 to 19.6 million passengers compared to what airlines had projected pre-COVID-19. This equates to a potential reduction of US$4 to 5 billion in gross operating revenues for airlines worldwide. Prior to the outbreak, airlines had planned to increase seat capacity by 3.4% for 2020, compared to 2019.

According to Airports Council International (ACI), passenger traffic exceeded 9.1 billion in 2019, representing 3.4% growth in total passenger traffic year-over-year. Based on this data, the ACI forecasted that global passenger traffic would reach 9.5 billion passengers in 2020. However, the COVID-19 outbreak made this traffic volume unattainable as the industry was grounded as of the end of March. Economic analysis of Airports Council International (ACI) predicts that the COVID-19 pandemic will wipe out two-fifths (38.1%) of passenger traffic and almost half of the revenues for airports in 2020. This is equivalent to 3.6 billion passengers in absolute terms. This shortfall in the number of passengers and the cancellation of flights will continue to result in reduced revenues. Before the COVID-19 outbreak ACI forecasted that global airport revenues for the first quarter of 2020 would reach close to US$39 billion. Based on traffic trends impacted by COVID-19 and the inevitable reduction in overall commercial activity, ACI now estimates a 33% loss of revenues equivalent to an approximate revenue shortfall of US$13 billion. While the industry was expected to generate about US$172 billion, it may lose about 45% or over US$76 billion by the end of this year considering the ongoing crisis. A drastic decline of such magnitude for the industry represents an existential threat. Airports must also continue to maintain and operate the infrastructure components such as runways, taxiways, aprons, parking stands, and terminal buildings. Despite the sharp reduction in passenger traffic, many airports remain open for cargo operations.

Besides all these, the pan-European, civil-military organization EUROCONTROL published a comprehensive assessment of the latest traffic situation in Europe and provided a comparison to the same period in 2019. According to the COVID-19 Impact on European Air Traffic EUROCONTROL Comprehensive Assessment, since the beginning of March, all bi-directional traffic flows between the European Civil Aviation Conference (ECAC) and other regions in the world have decreased with various dynamics and amplitude: the flow with Asia/Pacific is now the largest share of traffic to/from ECAC at 6%, but this is down 82% compared to last year.

From April 1st to the 20th 2020, the flow intra-ECAC (within) decreased by 90 compared to the same period in 2019, but its share decreased only slightly from 80% to 72% and remained by far the most substantial flow. The flow to/from Asia/Pacific decreased by 67% but is now the second-largest flow with 8% of the total flows compared to 3% in 2019. The flow to/from Middle East, which was the 2nd flow in 2019, has decreased by more than 80% and now represents 6% of all the flows. This time last year, all-cargo flights accounted for about 2% of total Departure/Arrival flights, whereas now it accounts for 15% as of Saturday, April 25, 2020. Also, according to the data provided by EUROCONTROL, virtually all of Europe's largest airports are now managing 90% fewer flights compared to last year, examples: Paris Orly had no flights, London Gatwick -98%, Vienna -96%, Munich -95%, Madrid -94%, Istanbul -91%, Paris CDG -91%, Amsterdam -90%, Milan Malpensa -89%, Dublin -88%, London Heathrow -87%, Frankfurt -84%, Athens -82% and Oslo -68%.

As a result of COVID-19, the number of flights operating daily in European airspace has declined by 90%. As this dramatic reduction in operations is likely to continue in the future, the airline industry has sought the support of EUROCONTROL Member States to deal with its sudden and significant cash flow crisis. On April 7, EUROCONTROL announced that its Member States have agreed on a financial package enabling airlines to defer the payment of up to €1.1 billion of air traffic control fees due for payment to Europe's air traffic management industry in the coming months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Financial Impact of Coronavirus on Aviation Industry

Dr. Batuğhan Karaer
Chairman of the Finance Association, Turkey

The coronavirus pandemic, which has paralyzed the entire world unexpectedly, wreaked havoc on the aviation and tourism industry, and then opened the door to an unprecedented contraction in the global economy by affecting almost all sectors. The virus crisis suddenly caught the world woefully unprepared.

The progression of the crisis, starting in China and spreading to the North American continent, has become directly linked to the economy. Capital markets are focusing on the number of patients and death tolls of countries rather than the macroeconomic data. The number of cases and related deaths are closely monitored on a daily basis. With these figures, everybody is striving to forecast the progress of the crisis by trying to wipe away the smoke screen that blurs the vision of the future ahead of them.

The most asked question is 'when will the fight against this outbreak be over?'; in a month or two, or in a year or more. The common opinion is that it will take 1 or 1.5 years to find out medicines and vaccines, however, the expectation is that the wheel of the economy will start to spin again as of June and July this year at the latest. Whether or not the fight against the virus becomes successful sooner or will be later on, an approach to deal with the spinning economic wheel now is vital before it is too late, and this has been expressed with concern in economic circles.

No matter how the fight against virus progresses, the aviation and tourism industry have undoubtedly been suffering from these crises. Whether the virus-related crisis is settled in the short term or in the long term, the aviation industry is one of the primary sectors affected by the crisis and will be among the last to come out of the crisis.

The aviation industry is revising its strategies. Companies are exerting their maximum efforts to maintain their current status and human resources, with the assumption that the crisis will be overcome at the beginning of this summer. But the main issue is the strategy to be adopted if the crisis prolongs. Certainly, the strategies of airline companies, which are at the center of industry dynamics, will affect the entire industry. Additionally, in what way and to what extent the states and financial circles will support airline companies is also the key issue. Recovery and development after the outbreak-related crisis depends upon several major criteria.

For the future of the industry, the questions on the following main topics need to be answered:

- Whether the crisis will be short, medium or long term,

- Whether the effects of the virus will be completely over, or whether life will continue with the virus for a certain period of time,

- The extent and scope of the states' support to their industries,

- The approach and stance of financial circles towards the sector,

- The financial structures and indebtedness of companies in the sector, especially airline companies,

- Whether the effects of the virus differ regionally

It would not be wrong to say that the larger part of the aviation sector of a country, where the fight against the virus lasts through the medium and long term, coupled with the lack of enough support from state and financial circles, will no longer exist. All the sub-sectors of aviation are formed by the volume and efficiency of airline companies' activities. Therefore, the critical factor to overcome the crisis as the industry is directly proportional to the survival of the airline companies as stated above.

Airline companies have high fixed charges. Whether the flights are conducted or not, payments for chartering agreements, staff salaries, technical and insurance expenses (ACMI: Aircraft, Crew, Maintenance, Insurance) must be made on a monthly basis. The average monthly fixed cost of a mid-size aircraft, including the charter fire (although it varies depending on the model and type), is around US$ 500,000-600,000, and around US$ 700,000-1,000,000 for a wide-body aircraft. For instance, if we think that the monthly cost of an airline company with 10 mid-size airplanes will be at least US$ 5 million, the suspension of flights for three months possibly leads to a loss of US$ 15 million. Of course, making partial or no payments to leasing companies or creditors for rental and the reduction of salaries of high-paid crews due to force majeure may minimize some of this loss. The cost reduction is directly related with the airline's success in managing the process. However, in the end, there may be a reduction in fixed costs up to 60-65% or some delays in expenditures. It is inevitable that airlines will be faced with an expense of at least US$ 250,000-300,000 per aircraft to maintain the existing fleet and the crew under all circumstances.

The airline also has to manage its liabilities regarding previous expenses for flight operations. Deferred liabilities to suppliers and airports due to operational expenses such as handling services taken at the airports where they fly, fuel, flight taxes and etc. should also be managed well. In addition to the fixed costs and deferred liabilities, the loan repayment should be postponed and/or restructured.

A model needs to be developed to compensate for losses that may incur due to derivative transactions against foreign exchange risk and/or fuel price increase risk. For example, it is difficult for an airline company to cover its loss of fuel prices hedged at a high price, when the due date comes.

As it is seen, there is no way for the airline company to financially compensate for the loss caused by the virus-related crisis singlehandedly. The effective and proper crisis management of the airline company, the stimulus package of the state, the approach of the financial sponsors, the understanding and tolerance to be shown by the staff and the flexibility of the suppliers are all indispensable to surpass the crisis.

The aviation industry plays a key role in determining the power of countries in the global economy as it interacts with many other sectors, especially

OUTBREAK CRISIS TRANSITION PROCESS				
	POST-CRISIS SITUATION	**SHORT (3-4 months)**	**MEDIUM (5-9 months)**	**LONG (more than 10 months)**
SUPPORT OF STATE AND FINANCIAL CIRCLES	**HIGH (Financing of the entire loss)**	More strong and taking advantage of opportunities	More strong	Pre-Crisis situation
	MODERATE (Financing at least half of the loss)	Pre-Crisis situation	Market loss and Pre-Crisis situation	Recession and high financial distress
	WEAK (Financing less than half of the loss)	Market loss and financial distress	Recession and moderate financial distress	Business closure, bankruptcy

Photo Caption: The matrix is prepared with the assumption that the company's financial structure is satisfactory. For companies with a higher level of debt, it is necessary to consider that its position in the matrix should be one box forward and below.

within the tourism sector. There are many burning questions about the future of the industry. However, regardless of the perspective we look, it is obvious that the future of the aviation industry depends primarily on the time of exit from the outbreak crisis as well as the approach that the states and financial circles take with the industry. The level and effects of these factors can be seen in the matrix provided below:

There is also a need for a well-structured plan to launch activities from the moment that the crisis is over. Support systems need to be provided during the crisis and applications such as denied boarding compensation, carbon emission taxes, etc. should be suspended for a certain period of time, for the companies' compensation of losses after the resumption of flights.

Since aircraft OEMs have halted or slowed down production, it is envisaged that after the crisis the supply will fall short of meeting demand in the industry, capacity problems will arise, and aircraft prices will go up. Companies should conduct studies that address the additional demand that may occur, as part of their plans to be implemented in the aftermath of the crisis, and this will enable them to overcome the crisis more favorably.

If the effects of the crisis fade out on a regional basis, the regions and countries that recover from the crisis rapidly will be more advantageous. There may be capacity transfers between companies. For instance, the transfer of both fleets and flight crews to the regions having a high number of flights is likely to take place. The fact that China's leaving behind the impact of the crisis early (currently owns nearly 40% of the world's aircrafts) may be a great opportunity for the East Asian and Southeast Asian aviation industry.

The environmental impacts of the reduced flights can be closely monitored by some environmental organizations. Due to the low number of flights during the outbreak related crisis, many studies and research on the effects of climate change and carbon emissions can be conducted. Studies on climate change may also lead to significant outputs for the future of the aviation industry.

Even though it is not possible to predict the exact time of the end of the crisis, it is apparent that many companies have put a stop to their operations if it takes longer. In order to fill the gap after the crisis, it is expected that the surviving companies will take advantage of the opportunities and new companies and collaborations may emerge.

It is obvious that aviation industry will be reshaped after the crisis, as is true for many areas of the economy. Regardless of the perspective from which we look at the sector, the aviation industry plays a key role in the economic growth of countries and their global effectiveness. Countries that can manage to find an exit from this virus crisis in a short time and that stand behind the aviation industry will be able to turn this crisis into an opportunity with respect to aviation and will gain a great economic advantage in terms of the global economy. Countries wishing to reduce the effects of the crisis right away will eventually realize that ignoring the aviation industry is not a viable option

UTIKAD Analysis: COVID-19 Impact on the Logistics Sector

The coronavirus (Covid-19) outbreak, which was first reported in Wuhan, China in December 2019, affected the entire world in a short period of time. Concerns about the outbreak, which has since been declared as a pandemic by the World Health Organization, continue to increase. With the effect s of Covid-19, China's exports, with the second largest economy in the world, decreased by 17.2 percent in the first two months of 2020. The trade war between the US and China was a factor that had negatively affected global demand, trade and the investment environment for more than 2 years. Even if the parties reached an agreement in January 2020, the deal promising China's purchase of services and goods worth US$ 200 billion from the US is believed unlikely to even happen now due to the coronavirus pandemic. The coronavirus epidemic has turned out to be a major phenomenon that threatens economic and social systems all over the world, especially human health. The logistics sector has also started to suffer in terms of transportation amid the spreading coronavirus outbreak.

A very significant portion of cargo (70-80%) in air transportation is carried in the lower compartments of passenger aircraft, and due to the cancellation of passenger flights there has been a significant decrease in the volume of cargo transported in passenger aircraft which has resulted in an increased demand for cargo aircraft. The number of passenger flights canceled in this current situation is so high that the demand for airlines is many times more than the current supply. At this point, airlines that charged 80 percent of the cost of passenger aircraft to passengers and 20 percent to cargo were suddenly obliged to charge the full cost of the aircraft to cargo alone. Airlines have started to organize their passenger aircraft quickly and are now using them for cargo transportation due to increasing cargo demands which fill the void caused by the drastic decrease in passenger demand.

THY Cargo currently provides service with 26 cargo aircraft and MNG Airlines with 8 cargo aircraft in order to fulfill all demands at maximum capacity. However, due to the sharp decrease in the capacity of passenger aircraft, and the high cost of carrying cargo with cargo aircraft, an increase in air freight in the coming period is inevitable.

Cargo flights and transactions in warehouses are being carried out under challenging conditions as all airline companies strive to conduct cargo flights without stop-overs, and flight crews perform their duties by staying in self isolation at hotels. According to the latest announcement, Sabiha Gokcen Airport has been closed to flights for one month as from April 1st. Air cargo agencies that continue to perform their activities at both Ataturk and Istanbul Airports, face financial difficulties due to the decline in their business

volumes. Despite this, the rental payments of the offices at both airports continue even though the air cargo volume has decreased significantly and these offices have become almost nonfunctional. For this reason, UTİKAD has made a request to the IGA for Istanbul Airport and for Turkish Airlines, and to the DHMI for Ataturk Airport, to temporarily suspend the rental payments of the offices at these airports.

When we look at global air transportation, we can say that we come up against another handicap. The International Air Transport Association (IATA) predicts that global air transport will fall for the first time since 2009 due to the coronavirus outbreak. The IATA estimates that the aviation industry in 2020 will remain 44 percent below the 2019 figures and below US$ 252 billion. The IATA is focusing primarily on a scenario where these serious travel restrictions last up to three months and then a gradual economic recovery comes later this year.

Airline agencies continue their activities with the minimum number of staff. We are going through a period in which payments are delayed, especially since foreign agencies have minimized their activities. Fluctuations and increases in prices received by agencies from airline companies cause problems due to the commitments they have previously given to their customers. Due to uncertainties in prices and flights, there are disruptions in air transportation of export and import cargoes.

During this period, it is also necessary to understand the situation of airline companies. Due to flight cancellations, airline companies have grounded their aircraft and unfortunately grounding equates to losses for the company. Flight crews can also be placed under quarantine in the countries that they visit, and it is also problematic to return equipment that has been transported. Increasing expenses and shrinking transportation operations also challenge airline companies in the face of significant costs.

In addition, air cargo agencies are not able to collect the transportation fees of the cargo they transport, but at the due date they must make payments to the CASS, the collection system of IATA member aircraft companies. UTIKAD made a request to the IATA for the extension of these payments but the request was rejected for now. Such payments should be delayed; otherwise many small and medium air cargo agencies will be stuck between a rock and a hard place, a very difficult situation that will have a ripple effect on many businesses in many sectors, locally and globally.

Within the scope of the measures taken for the coranavirus outbreak, Habur Border Gate, which is Turkey's gate to Iraq, one of the most important trading points, was closed to passenger entry and exit as of March 1, 2020, and commercial passages have started to be realized under strict control. In this context, exports to Iraq have been carried out as "contactless" through containers, trailers and driver changes in the buffer zone between Habur - İbrahim Halil Border Gates since March 1, 2020. At the entry point to Iraq, only Turkish drivers are allowed entry subject to quarantine requirements, while foreign drivers are not allowed to enter Turkey. Vehicles coming from Iraq are disinfected in the buffer zone and a driver change is made.

The "locomotive" solution has also facilitated trade with Iran. For the time being, Iranian transport freight trains that are sterilized at the Kapıköy border gate are dispatched after a 4-hour wait outside the station. In order to avoid any physical contact, freight wagons are transported to the Iranian side behind the locomotive or to the Turkish border region from the Iranian side. During this process, the locomotive and personnel do not cross the border. Within the EU, there were no internal border controls before the outbreak, but the member states have reintroduced internal border controls, and such controls at the border gates have led to long vehicle queues. As a result, both transit time and freight fees have increased. However, the EU requires all member countries to ease and speed up vehicle crossings through border gates as much as possible. The EU also expects the same from Turkey.

As an alternative to the compulsory 14-day quarantine applied to truck drivers, we as UTIKAD conveyed our recommendation to the Vice President Mr. Fuat Oktay, suggesting that drivers having no symptoms of COVID-19 can continue their drive through the help of rapid diagnostic tests. We have to overcome this problematic issue immediately with the test laboratories to be established by the Ministry of Health at Kapıkule and other border gates.

Expectations and Recommendations

• Turkish and foreign drivers arriving at the Turkish border at the Kapıkule border gate should be allowed to continue their journey after a rapid diagnostic test has been administered, instead of 14-day quarantine.

• For export transportation, after applying rapid diagnostic tests to the drivers and provided that their test results are negative, border crossings of vehicles to headed to European countries should be allowed, by reporting the details to Bulgarian authorities.

• This precaution, which will be taken primarily at the Kapıkule border gate, should also be applied at other border gates.

• Urgent action should be taken before the EU border to automatically extend the Schengen visas of Turkish drivers until a specified date.

• Urgent action should be taken before the EU border to suspend the quota and transit permit system applied by the EU states to Turkish transport vehicles.

• Freight should be able to cross the borders within 15 minutes, transport corridors should be kept open for freightage, national restrictions on transportation should be lifted and administrative procedures applied to all of those working in the transportation sector should be minimized.

In addition, due to the suspension of visa issuance by some EU member states, the operation and transportation of the Turkish truck fleet has almost come to a halt.

In order to ensure the continuation of necessary commercial activities and the logistics flow between Turkey and European countries without a complete interruption, according to the measures taken for the coronavirus outbreak, our Association conveyed its request to the Ministry of Commerce, General Directorate of Free Zones, Foreign Investments and Services to take steps with the relevant authorities in the direction of immediate visa issuance to the drivers in Turkey that cannot renew their visas.

Our aim is to continue, without interruption, the international transportation and logistics activities, which are vital for the foreign trade of our country. For this reason, on our website (https://www.utikad.org.tr/Covid-19), announcements about restrictions or developments and precautions taken by countries are updated, and are presented to both logistics companies and foreign trade companies.

In maritime transportation, carriers have reduced their voyages to/from China due to the outbreak, which negatively impacted container traffic across the world. Vessels not accepted to ports cause delays in cargo and causes an increase in transportation costs. Due to blank sailing, global volume loss reached 1.9 million TEU (twenty-foot equivalent) in the first two months of 2020. Due to the decrease in imports from the Far East, no empty containers are available to load export goods. Due to the unloaded export loads, space problems on vessels have started. The reason for this is that vessels coming from banned countries are not accepted to ports in Turkey before the end of the 14-day quarantine period. Assuming that the vessel's voyage takes 8 days in average, it is not accepted to the port without completing the remaining days in this case. This, of course, leads to a serious cost increase and a delay in export. On the other hand, in transportation conducted with the combination of railway and seaway, high demurrage and warehouse fees continue to occur due to delays in railways.

We can observe that overall, the mode of transport that has been least affected by the coronavirus pandemic is railway transport. Railway has come to the fore as the preferred mode of passenger transportation, since physical contact is less likely in railway transport compared to other modes of transport. We can say that the negative impact of the measures taken by countries on railway transport is relatively low. Railways are positioned in much better condition for the current situation compared to highways, especially for departures towards European countries. We observe that there has been a considerable increase recently in demand for railway transport. In response to this rise in demand, it may be possible to conduct more efficient railway transportation with an increase in frequency and the supply of additional wagons. Regarding this issue, Turkish State Railways also announced that it would increase its capacity in the Baku-Tbilisi-Kars line.

As UTIKAD, we continue to exert efforts to ensure that our country, our industry, our members and stakeholders can overcome this pandemic and its economic impact with minimum commercial losses. We wish to leave these days behind us, where we once again understand the importance of protecting human life and nature. Stay healthy and safe!

Why have Airlines Started to Carry Cargo with Passenger Aircraft Amid the Pandemic?

by Muhammed Yılmaz

The first cargo flight took place in 1910 in Ohio, by a company requesting to carry two bolts of silk (90 kg) transported by the Wright Brothers to Columbus. Since that day, cargo carried on airplanes has become an economically important contribution for airlines.

As a result of the pandemic that we are now experiencing, a new era has started in which airlines that ceased passenger flights have started to carry cargo with passenger aircraft. In the details of the news about travel restrictions and flight bans, we read that cargo flights are exempt from this situation. Okay but why is this the case? Let's take a look at the underlying reasons...

Due to the fact that passenger demand has dropped sharply to near zero, the industry has been hit extremely hard. Sectoral reports show that the number of passenger aircraft that have been grounded has reached nearly 16 thousand. This means that more than 60% of all airplanes are now on the ground.

Even global giant airline companies have suspended 90% of their capacity and many airlines had to cancel all their flights in line with government decisions. The picture is so dark and painful that both airlines and manufacturers have asked for government bailouts to survive.

While airline companies across the world cancel their flights to a large extent and ground aircraft in their fleets, they are attempting to overcome this crisis by carrying out cargo operations with passenger aircraft, as an alternative step.

The approach of using passenger aircraft for transporting cargo has become accepted and applied by almost all actors of the industry.

Passenger airplanes in fact carry more than the passengers, their luggage, and viruses. A significant volume of cargo is also carried in the cargo compartments of all airplanes that we usually fly. For airlines, the cargo transported in the cargo compartments of passenger aircraft is one of the easiest methods of generating regular additional revenue. For example, passenger airplanes in Asia carry about 45% of the air cargo capacity. This important work share helps businesses regulate all transportation processes globally. Especially in transatlantic routes, this rate may reach as much as 80%.

For example, due to Trump's decision to ban all flights from EU countries to the USA for 30 days, not merely passenger flights were affected. A huge capacity problem also emerged in terms of cargo transportation.

Because of the capacity problems in cargo transportation, doing the same business with cargo planes nearly doubled shipping costs. Moreover, due to increasing demand shipping time has also doubled.

Passenger aircraft are used to transport cargo in order to achieve a slight improvement in financial outlook and generate additional revenue. With the gradual normalization of the factories in China, which reduced their production capacities to almost zero by the end of January, it is impossible to meet transportation demand by cargo planes alone.

Considering the fact that oil prices have fallen to the lowest levels in recent years, the requirement to pay employee salaries regardless of whether they fly or not, and with the high freight costs, airlines regard cargo transportation with passenger planes as a lifeline support amid the pandemic.

The resulting situation not only creates a small boost in vitality for the waning global economy, but also provides some liquidity for the airlines who have had very little relief during this crisis.

We experienced similar practices before during the 2002 SARS crisis and the West Coast port strike in 2015 in the US. This step that has become a natural consequence of the Covid-19 outbreak in the industry.

The new aviation phenomenon Preighter

Many airlines all over the world are finding different ways to turn their passenger planes into freighters. Lufthansa CEO Carsten Spohr, has become the first to give the new aviation's phenomenon name: Preighters (a combination of passenger aircraft and freighter)

Passenger cabins are not designed for all cargo configurations, but the rules allow goods to be carried under the seats, in stowage bins or storage closets if all normal requirements for the safe carriage of cargo are followed. Putting boxes in the seats or removing the seats requires special permission.

The Federal Aviation Administration issued guidelines for commercial carriers to follow if they transport cargo in stowage bins, passenger seats or on the floor, with the seats removed. The safety alert essentially tells carriers they can carry shipments up top as long as they adhere to all regulatory requirements for the safe carriage of cargo.

The safety alert instructs operators how to assess the risk for carrying goods in the passenger space, including weight and balance, fire detection and suppression and hazardous materials considerations. Carriers have to verify the contents to make sure no dangerous goods are carried in the upper deck.

The FAA recommends that one or more crew members travel in the cabin with the cargo to respond to any potential fire, since fire suppression systems are not present as they are in the cargo hold of modern widebody aircraft. Passenger cabins only have fire extinguishers.

Airbus developed a modification for A330 and A350 family aircraft which will enable airlines to install freight pallets directly onto the cabin floor seat tracks, after removal of the economy-class seats.

This solution helped with the airlines' own business continuity, and also alleviate the global shortage of 'belly-freight' air cargo capacity due to the widespread grounding of long-haul aircraft in the context of the COVID-19 pandemic.

The modification is packaged for operators as an Airbus Service Bulletin (SB). Under this arrangement Airbus defines the engineering workscope and also manages the process for obtaining the one time certification from the European Union Aviation Safety Agency (EASA).

Franco-Italian aircraft manufacturer ATR is one of a number of companies offering flexible cargo capacity solutions to easily reconfigure full passenger jets to cargo or a mix of both.

by Cem Akalın

Modern Day Watchmen

Drones Scout for Natural Disasters & Outbreaks

Military and commercial multipurpose drones are proliferating worldwide. They are active in areas where the use of manpower is often inadequate and in areas that simply are incapable of access otherwise. Drones handle a variety of scouting and operational duties due to their precision and capacity to achieve highly efficient and cost-effective results, especially in hazardous areas. In military operations drones are utilized in a wide range of activities, from Nano class to the Strategic Class at high altitudes for the purpose of reconnaissance and surveillance, detection, tracking and attack. Various drones that are active on the civilian side have now become the trusted wingmen of many backpackers and travelers, capturing high resolution wide-angle fascinating footage and images. On the commercial side, autonomous drones have become an influential alternative in air cargo transportation (Google, amazon, etc.) in many regions where transportation is a challenge, especially in residential areas. Drone technologies are of course not designed only for cargo transportation. Drone technologies are also frequently used in construction and architectural projects to complete ground surveys, 3D mapping and sketches by using real time images. Additionally, they carryout surveillance and cleaning services for power plants or industrial wind turbines. For instance, they can also be used for routine aerial control of crops grown in agricultural areas, for mapping, disease detection as well as agricultural spraying and seeding with special equipment mounted on them. In the field of livestock, drones are used in operations such as disease control of animals providing real-time tracking and detection capability that are unbeatable coupled with their ability to cover wider terrain.

The battle against forest fires is another area where drones and unmanned aerial vehicles (UAVs) have started to play an essential and regular role. Drones equipped with optical and infrared systems are used in the prevention of seasonal forest fires that occur due to long-lasting droughts. These specialized drones detect hot spots in the fire zone, and capture measurements of fire temperature. We see that unmanned aircraft systems (K-MAX etc.) are being used extensively in developed countries, such as the US and Australia, for the intervention of fire with water and chemicals at exactly the right angle, and smaller class drone systems are being used to transport equipment and aid materials to firefighters on the ground. Being able to react at the right time is one of the key parameters for a quick and effective fire response

operation. Although firefighting aircraft or upper segment UAV systems are an important option for large-scale fires, experts believe that expensive systems are not really necessary in order to effectively respond to fires that are low or moderate in severity, saying that reaction time is more important than quality, in terms of not needing to capture high resolution videos or images in order to react decisively. The real-time delivery of critical information to fire units can be conducted with more cost-effective drone systems. Drone capture and relay of critical information such as fire character, fire density, smoke emission, spread rate, and direction and intensity of the wind in a medium-sized region can be conducted without expensive higher resolution images and videos, which is more advantageous in active fire management and for department budgets as well. On the other hand, in countries such as China,

The first live fire drill for high-rise fire fighting drones were held in Dazu, Chongqing, April, 2020

we have frequently seen in social media that medium-sized drones with an integrated fire hose are used effectively for skyscraper or high-rise fires.

Today, UAVs and small-sized drone systems are effectively being used by many countries across the world in response to volcanic eruptions, hurricanes, tornadoes, floods, nuclear power plant accidents and the list goes on. In addition, we see that they play a critical role in natural disasters such as earthquakes by determining the degree of damage in an earthquake area, examining the status of the transportation network, generating up-to-date 3D mapping of the disaster area, establishing the temporary communication network, and they are used to carryout proper resource allocation in critical post-disaster activities such as recovery, debris removal and relief distribution. In brief, these systems are essential for the effective and efficient management of disaster operations.

An article published in the Journal of Field Robotics in 2016, reported that rapid damage assessment in post-earthquake situations plays an

important role in being able to rapidly respond. As in all other disasters, early response phase activities (i.e., evacuation of injured individuals, debris removal, and relief distribution) are essential, especially within the first 30 minutes as the survival rate is 91% and it will fall to 36.7% by the second day. Therefore, post-earthquake damage assessment is an important factor. Since ground-based post-earthquake inspection is extremely time-consuming and unhelpful in heavily damaged areas, aerial systems are widely used for timely investigative and assessment purposes.

In case of a dam burst or unforeseen floods, especially within the scope of pre-disaster precautions, fixed-wing and multi-rotor UAV systems (operative, tactical UAV systems) perform tasks to determine the existing state of a dam, for example the proactive identification of areas that are at risk of rupture. Locations on the dam that

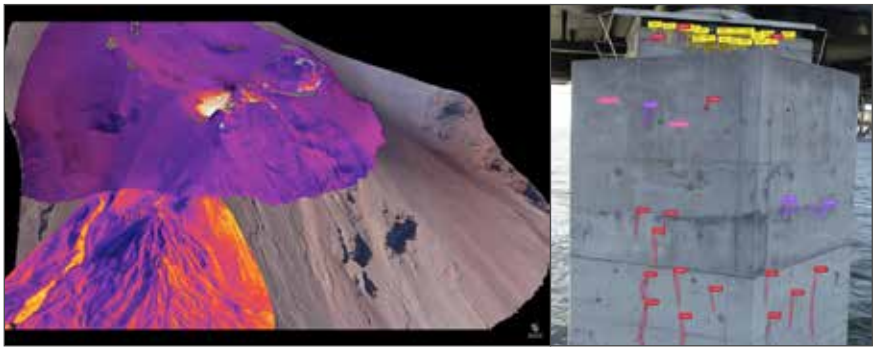
Preparation of an unmanned helicopter to a two-hour flight in the area of radiation accident radiation measurement, photography and videograph

are perhaps extremely dangerous are monitored to improve safety, even under extraordinary conditions. These systems capture close range information about cracks or fractures in the dam, and they also provide detailed information for the analysis of the flood area. They are also able to perform critical tasks during disasters such as the real-time monitoring of the flood area, providing guidance local units for the evacuation of survivors trapped in the flood area. During evacuation operations, these systems are able to determine the location of damaged buildings, roads and bridges so that rescue teams can designate an appropriate evacuation route. Apart from these worst-case scenarios, drones are also routinely used for the inspection of civil engineering structures such as motorways, buildings, bridges, pipelines. With the advances in machine learning and AI algorithms, proactive analysis can be completed to identify cracks, leakage and other forms of deterioration.

Clustering and utilizing a mathematical-based approach for UAV route planning in post-disaster crisis management is a key parameter that affects the success of disaster management. It is very important for decision makers to execute precise and careful calculations, as similar systems simultaneously serving on the same route as a result of calculation errors may lead to a waste of time and unnecessary use of resources. On the other hand, the homogeneous distribution of different UAV operation types in the field and how these systems interoperate in real-time are points that should be focused upon. For disasters that have been experienced before, such as earthquakes, fires, hurricanes and tornadoes, many developed countries have contingency plans in place. Then we must ask, what kind of a role will drone technologies play during this unprecedented global coronavirus outbreak? We will examine this topic in the next section, but first let's take a look at the history and impact of outbreaks in the modern world.

What is the readiness level of countries for epidemics having unpredictable spread rates?

When we analyze the examples in the world, the first global epidemic started in the Guangdong province of southern China in mid-November 2002 and was announced to the world by the World Health Organization (WHO) in March 2003, when severe pneumonia cases occurred

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in Singapore, Hong Kong and Hanoi. The SARS/CoV epidemic affected 29 countries and resulted in more than 8,000 cases and 774 deaths in 2003. The case-fatality ratio was 7-17%. The eight-month epidemic was limited to only 29 countries and therefore was not declared to be a pandemic as it had not spread on global scale.

Ten years later, the MERS-CoV epidemic originating in the Middle East was reported in September 2012. As of January 2020, the total number of laboratory-confirmed MERS-CoV infection cases reported by the WHO was 2,494 with 858 deaths in 27 countries. Even today, MERS cases continue to be reported. The two examples of virus outbreaks are an indication of the process we have been going through recently, but because of the fact that they only impacted a limited number of countries and did not span the entire globe, interest eventually waned. Both of these examples only occupied the news for a relatively short while and then news of these infection cases slipped from the headlines and they were forgotten by the general public thereafter.

On January 1, 2020, the emergence of the novel type coronavirus COVID-19 was officially announced to the world by the Chinese Center for Disease Control and Prevention. With a population of 11 million people, Wuhan city, the capital of Hubei province, was quarantined on January 23rd. Since the first cases were not notified to relevant authorities in a timely manner and the Chinese were on holiday in different countries because of the Chinese new-year, the virus spread to other Asian countries through these travelers who had been in direct contact with Wuhan and then the virus headed towards Europe, America and eventually to the rest of the world. According to data as of April 30th, the number of total cases confirmed by official authorities unfortunately exceeded 3.5 million and the virus spread to approximately 190 countries as the world has been struggling to fight this pandemic. As part of the initial measures, countries suspended their all flights and closed their borders, and then within the scope of quarantine measures, numerous measures were adopted that restricted the daily lives of the citizens (restriction of social and cultural activities, lockdown of all workplaces except for drugstores and supermarkets, curfew etc.) The speed of the transmission of the virus from an asymptomatic, silent carrier to hundreds and even thousands of people in a short time, the fatality rate particularly in older citizens and people with lower immunity revealed that all measures and restrictions should be strictly implemented across the world.

Having been seriously accused from many countries such as the US, for not notifying global authorities about the outbreak in a timely manner, and being accused of hiding developments about the virus before it became a pandemic, the People's Republic of China presently seems to have taken control of the virus through the implementation serious measures. The lockdown across the whole city was lifted as of April 8th. According to mathematical models, countries that invest in technology and that are prepared for epidemics and natural disasters such as South Korea, Taiwan and Hong Kong are successfully managing the process for the time being. Activities such as the application of effective testing kits for numerous patients and suspected cases and every citizen's isolation from social life - as if they were positive for COVID-19, and the effective implementation of emergency action plans of these countries in the field will be examined as best practices in the years to come. For example, China's construction of

a hospital in only eight days in Wuhan, the daily execution of ten thousand tests in South Korea, and - though being China's neighbor - Taiwan locked down its airspace and land borders without losing any time, etc. Without doubt, the aforementioned countries' implementation of strict measures (including imposing significant fines or prison sentences if the lockdown measures are broken) should be considered a critical step in the prevention of the further spread of the virus. With the lessons learned from the aforementioned cases, every country should be able identify their own urgent action plan and adopt their own measures to manage processes that are critical in the event of future natural disasters or pandemics.

Leaving the healthcare aspect of the pandemic to the experts, it will be quite helpful to review how recent utilization of drone systems and technologies has been effective in slowing down the spread of the pandemic. The variety of functions that the drone watchmen of the pandemic perform have earned them the distinction of becoming leading protectors in this battle.

China, the country where the virus originated, is at top of the list of countries that have benefitted from the advantages of using technology to manage the further spread of this pandemic. It is useful to say that the data at this point originates from China as well, and with caution for this reason we will be able to clearly see the effectiveness of these efforts in light of the data provided by independent channels in the upcoming days.

On February 25, 2020, the company DJI Drone, which controls nearly 80% of the commercial drone market announced that they launched the active utilization of drones for the prevention of the spread of the virus with the Chinese public safety authorities who endeavor to clear the fear that is dominating the country and to seek ways of using new technologies to overcome the crisis. Thus, a new duty was added to the task list of modern-day drones in this new and unprecedented challenge.

Watchers of the pandemic – Are drones really effective?

Collaborating with the Chinese Agricultural Technology Organization, the Chinese company DJI announced at the end of February that they allocated US$ 1.5 million to the efforts exerted for fighting against the pandemic, adding that they developed convenient methods for spraying chlorine or ethyl alcohol based disinfectant from the air to open public spaces and they have launched these operations after research and test processes were completed.

According to the assertions of DJI, in China where more than 50 million people was under quarantine, only in the city of Shenzen, in addition to the disinfection operations conducted by drones spanning an area of over 3 million square meters, aid in fighting the virus was provided to1,000 districts in this way. In DJI's statement, the company stated that in such a pandemic, where time played a critical role, on account of the disinfection operations executed by the army of drones, results were achieved 50 times faster than traditional methods in an area covering 600 million square meters, such as factories, residential areas, hospitals and wastewater treatments plants.

In the statement, in addition to disinfection operations, it was also noted that drones were actively used in various areas during the fight against the pandemic. Speakers mounted on drones were used to deliver audio warnings at crowded venues and at meetings in outdoor areas, and that they also relayed critical information on protective measures against the disease to people through banners. Moreover, the

statement underlined that thermal cameras integrated on drones were used to monitor body temperature in order to support medical staff in the identification of new potential cases as well as to collect the data in a register. A video shared on February 13th on the website of a publication broadcasting in Chinese displayed that drones integrated with thermal cameras and speakers had instructed residents to come out to their balconies or in front of their windows without leaving their residences and then measured their body temperature. In addition to these measures, according to a report which was issued in this period in the Global Times - again a Chinese newspaper, a system was launched that was mounted on the helmets of security guards capable of measuring the body temperature of anyone at a diameter of five meters. It was reported that the system gives alarms as it identifies a person with a fever. During these times it is difficult to provide aid to millions of families that are incapable of leaving their homes, and now aid has been provided by drones. Chinese media frequently shared images of drones conducting the transportation of food, equipment and medicine to people in need, on behalf of organizations


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and without bearing any risks. Surely, it is quite hard to tell at this moment whether these applications are merely a part of propaganda or they are genuinely complementary parts playing a role in minimizing the effects of this pandemic.

It is still discussed whether or not the activities performed by drones in China cover the whole population living across an area of considerable size and meanwhile with the spread of the virus in Europe, European countries' frequent and active utilization of similar implementations had wide press coverage. On March 15th, Spain launched the utilization of the first speakers mounted systems on drones, used to inform and warn citizens, and later we witnessed the utilization of drones that are typically used in agricultural areas, capable of carrying 10lt of disinfectants to spray and disinfect public spaces in Spain. Following Spain, on March 19th, France also started to use speakers mounted drones to warn people to keep their social distance. These drones were initially used in Nice and then in the other cities


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of the country. In Italy, drone systems started to be used by municipalities to watch the actions of the population in public space upon the permission of the Italian Civil Aviation Authority (ENAC). Countries such as Belgium and Austria also have launched the utilization of several drone systems for the identification and monitoring of crowds as well as to keep up the social distancing. In addition to the aforementioned applications of drone systems, Norway and Spain approved testing of various methods for the measurement of body temperature from a safe distance of 2 to 3 meters by thermal cameras. Similarly, we observe the utilization of drone systems to ensure social distancing and the monitoring of crowds in America and in various geographies of the world. Though partially, Turkey has been one of the countries benefiting from drone technologies

AFAD Team Earthquake Exercise

during this period. We witnessed municipalities benefiting from these systems in Istanbul - a highly populated city, by using them as mobile announcing systems to inform and warn residents gathered in parks and to reach the recreational fishermen spending time near the waterside. Law enforcement teams have also been using thermal camera mounted drones in public areas as well.

Conclusion

As a result of the merciless consumption of our world's resources, such pandemics, natural and man-made disasters stand in front of us as the reality of today and the future of our world. Under the guidance of organizations, such as AFAD (Disaster and Emergency Management Presidency) in Turkey, it behooves municipalities, relevant public institutions and organizations of countries to actively benefit from the drone technologies (systems capable of carrying thermal cameras, accessing risky and dangerous narrow and small areas, delivering aid and systems capable of reconnaissance - surveillance) in action plans that they will be preparing within this scope. Certainly, just like other countries, there are severe restrictions in Turkey (green and red zones) in operating unmanned systems in public spaces. The instruction on unmanned air vehicles published by the Directorate General of Civil Aviation (DGCA) regulates in detail the grouping of UAV systems, license of pilots and flight permits, no-fly zones, flight conditions and requirements. Again, according to the data provided by the DGCA, there are currently over 50 thousand registered drone operators in Turkey, with a rapidly increasing trend. Within the scope of the rules identified by decision makers, all relevant authorities should assess and consider all the aspects of regulations and the previously designed emergency action and implementation plan on the application of the measures to be adopted in cases of man-made disasters or natural disasters that occur abruptly and where time plays a major role in saving the lives of people. If required, temporary assignment of these registered drone operators throughout the country, depending on their competence and qualities, could be an effective solution as well. Licensed and qualified pilots with a designated number of flight hours would be able to provide benefit through their experience.

This pandemic will surely have a lasting in one way or another, yet Turkey is still a country of earthquakes, therefore the establishment of a network-centric and strategic structure that enables the efficient and effective utilization of various military class UAV systems, cost-efficient drone systems of smaller scales is essential. The Turkish Armed Forces and AFAD units and other volunteering search and rescue teams in the field and municipalities under the coordination of the Ministry of National Defense and relevant Ministries will certainly render Turkey one of the pioneers in the world in this area by taking advantage of evolving drone technology now

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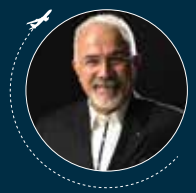


Can Erel
Aeronautical Engineer

“Launch and Development of Air Ambulance Services in Turkey”

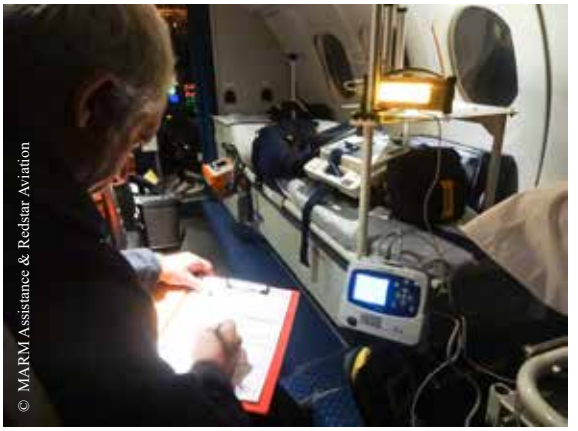
In this issue, we are proud to share a part of the “CAN’CA Interview” by Can Erel, Chief Advisor to the Aviation Turkey Editorial Board with Dr. Mustafa Şevki Ataç, MARM Assistance Board Member, about his career related to the first air ambulance services in Turkey.

During the initial period of my forty-year professional life after I had engaged in military aviation, I dealt with the trade of air ambulances, including providing instruction on how to quickly transform air vehicles into air ambulances that could serve as an intensive care unit and which even provide medical procedures during flight.

This year, the Women of Aviation Worldwide Week theme "Women with Wings Healing the World" was chosen by the Institute for Women of Aviation Worldwide, based in Montreal, Canada, to celebrate 85 years of female flight paramedics.

This theme reminded me of the First Turkish Female Doctor and the First Turkish Female Nurse assigned in the flight health crew, as well as the First Turkish Female Pilot of the fixed-wing emergency medical services aircraft (EMS) and the First Turkish Female Pilot of the rotary-wing air ambulance (helicopter emergency medical services - HEMS). To that end, I decided to learn more about such details from a senior member of aviation and receive his opinions on the subject. He had offered that I manage his company, and I am honored by his request even though we could not make it happen at the time.

And then the COVID-19 pandemic and the fight against it started. Therefore, since it is one of the issues - perhaps the most critical one - that connect aviation and healthcare, it was certainly due time to start the first stage of the series of the “CAN’CA Interview” that delves into the subject of the launch and development of air ambulance services in Turkey, the milestones of these ambulance flights conducted with fixed-wing air vehicles (EMS) and rotary wing air vehicles (HEMS), the transported patients, flight and health crew. I finally managed to reach Dr. Mustafa Şevki Ataç and though he has been away from detailed sources regarding this subject, he positively replied to my sincere suggestion for an interview with his friendly and constructive manner as usual. So, I carried out a video conference within the scope of the hashtag #stayathome, and we were able to discuss this topic with the benefits of modern technology. I would like to share a part of this important interview with the esteemed readers of the Aviation Turkey Magazine.



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Can Erel (CE): Who is Dr. Mustafa Şevki Ataç, where and how did his childhood and youth pass?

Dr. Mustafa Şevki Ataç (Dr. MŞA): I was born on April 24, 1947 in Ankara, the first of four children. My father was a former member of the Turkish Armed Forces and my mother was a housewife. I was raised by my grandparents till I was 10 due to my father’s compulsory service in the East. I went to TED Ankara College for elementary and high school and then completed my graduate degree at the Faculty of Medicine at Ankara University.

CE: How did you become interested in medicine, please tell us about your achievements as a medical doctor?

Dr. MŞA: Upon my graduation from the Faculty of Medicine at Ankara University, I went to the Netherlands. I worked as a general practitioner in the eastern part of the Netherlands densely populated by Turkish employees. Examination clinics where I was able to examine Turkish and other foreign patients were established at eight

different locations within six months.

Upon the arrival of two of my beloved classmates to the Netherlands, we started to offer the best healthcare services we could to Turkish patients.

As a result of the aforementioned efforts, for the first time in the history of the Ministry of Health, Welfare and Sport in the Netherlands, a foreign doctor had been authorized to open a clinic.

The most striking point during this project was the close attention of the Dutch authorities and their willingness to consult us especially on the healthcare and social issues regarding foreigners.

Netherlands placed significance importance on science and technology and directed this focus towards creating an impressive education system, and now the Netherlands is recognized as a top country in the world in terms of their successful education system. I aimed to specialize in a major department of medicine in which the Netherlands had advanced and then return to Turkey and serve my country which enabled me to be trained in such an expensive branch of medicine. Such an opportunity emerged upon my acceptance as an assistant to the

Dr. Mustafa Şevki Ataç

Neurosurgery Department of the world-renowned Erasmus University's Faculty of Medicine in Rotterdam.

After I completed my specialization, I left the Netherlands where I worked with great will and desire and where I received utmost warmth and returned to Turkey with my wife and two children.

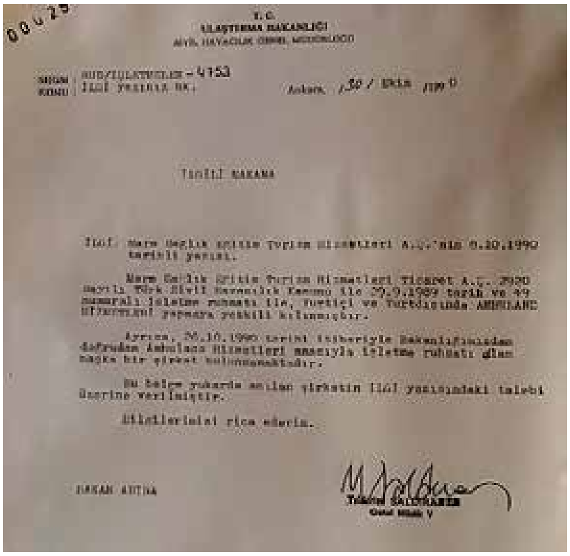
I worked at the Faculty of Medicine of Ege University for nearly two years and then started to work at Izmir State Hospital as an Assistant to the Director. I started to operate being thankful to the Governor of the city who soundly invested the financial aid granted by the Queen of Britain during the Crimean War in the establishment of a hospital at the Konak district of Izmir. I could never forget the team at Izmir State Hospital who worked selflessly, without ever complaining about working uninterruptedly, night and day.

During my specialization in the Netherlands, I coincided with a single patient with a bullet in the head, yet I had to respond to many bullet injuries in the head and spine during the period before September 12, 1980 (date of military coup). In those days, Ege University and the newly founded Dokuz Eylül University with limited facilities were transferring patients with bullet injuries to the State Hospital as the injuries had "political" motives. Due to the limited number of assistant doctors, I collaborated with the assistants I had requested from the clinics of orthopedics and ophthalmology in rotations of three months. I barely went home most of the time; those who did not experience the era of September 12 would never know the hardship we went through!

One of the issues that concerned me most was the loss of lives caused by the deficiencies in the patient transport system (ambulances) as we lost patients that could have been resuscitated merely through practical responses, after road and occupational accidents. The second issue was that the number of patients transferred from hospitals with limited facilities to hospitals offering superior healthcare services was so low that barely any patients had that opportunity!

The ambulances of the Provincial Health Directorate were extremely insufficient, and they were used to carry the loads and equipment in addition to patients! The problem with the transportation of patients had to be solved! But how?

Turkey made incredible progress in tourism in the midst of 1980s. Amazing facilities were built in a short amount of time and the highly capable Turkish people had the opportunity to get acquainted with tourism and loved it, but the healthcare services lagged behind in the touristic regions that had developed rapidly. There was nothing that the state administration could do about it. The medical doctors and businessmen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initially established clinics and then their hospitals in these regions where seasonal operations took place. Yet they had very limited facilities!

Most of the air ambulance companies established abroad took advantage of the limited healthcare services offered in touristic regions in countries such as Turkey and they rapidly developed. Why could we do nothing but witness such developments and how had we failed to take any action?

In 1986, with the help of MARM Assistance, which I had established as a result of certain coincidences, we started to offer healthcare services to foreign patients. We enabled their access to proper healthcare institutions so that they could receive appropriate services from proper medical doctors at convenient prices at the right time, and as a result the business grew quite big very soon!

In those days, the healthcare services in major Turkish cities such as Ankara, Istanbul, Izmir and Adana were more advanced compared to other cities in the country. I could do nothing but watch with sorrow as patients were taken to their own countries via air ambulances because they could not be treated at the local hospitals. It was apparent that the promotion of “Turkish Healthcare Services,” and increasing Turkey’s prestige and attracting foreign patients to Turkey could be achieved and maintained through proper patient transportation services.

Something had to be done!

CE: How did you focus on air ambulance services? To be more precise, could you inform us on the establishment of the first company, namely MARM, to offer air ambulance services in Turkey with an operation license dated 29.09.1998 and numbered 49 as per the Turkish Civil Aviation Law no 2920?

Dr. MŞA: Turkey is really a wonderful country! At the same time, it is situated in a large geographical location rendering it inconvenient for land transport, particularly in the transport of patients. Transporting a patient from Alanya or Ürgüp to Ankara, to Izmir from Denizli or Uşak with a ground ambulance would bear great risks. The establishment of an air ambulance system in Turkey through the inspiration that could be drawn upon from the best practices in Europe that render these types of services with the same quality should have been an objective for Turkey as well.

Wings Aviation, as an air ambulance company, was founded with a Beechcraft KingAir 200 aircraft equipped fully with intensive care components and with the doctors and nurses of the intensive care unit of Innsbruck University, yet it was held back by the Tyrolian Air Ambulance company - an affiliate of Swarovski!

On the other hand, MARM Assistance was quickly recognized and accepted by foreign countries thanks to the services offered to foreigners across Turkey. The owners of Wings Aviation visited our center in Izmir at that time and asked if they could run the aircraft in Turkey by registering it in Turkey.

Well, this was unexpected!

I told them that I was unfamiliar with the physiology of medical aviation, that flight doctors were merely employed by the Air Forces in Turkey and added that I had no experience in this area as I had never flown on a small plane in my life. The owners of Wings Aviation told me that they would be solving all


GÜNAYDIN

Sağol doktor

those issues and asked me how many transports of patients I would be able to guarantee them per year. I replied to them by making the "zero" sign with my fingers, while inside I was telling myself "you did your best to miss this opportunity Mustafa" ... Then again, honesty won as usual and we made a deal!

That was the first time I heard the title Directorate General of Civil Aviation (DGCA)!

The management of the DGCA supported me in an unforgettable way and the TC-FBZ with Turkish registration was launched to service on September 29, 1989 as an aircraft (under the auspices of MARM Assistance with the operation license no 49) fully equipped with intensive care components that would not operate for purposes other than the transport of patients, for the first time in the history of the Republic of Turkey! (Obtaining AOC from the Turkish Ministry of Health -1989)

I always remember the employees of the DGCA of that time with deep gratitude.

We not only transported patients from Turkey to their countries but also foreign patients in Greece, Italy and the Balkans to their countries with this business. Furthermore, many patients were

transported to Izmir from hospitals with limited facilities in the Greek Islands!

In the meantime, the Turkish medical team received fruitful training and the Austrian paramedics returned to their country after the third week of the launch of the business. Upon the joining of our first Turkish pilot, captain Yavuz Hünkar after two months and joining of captain Tayyar Ülker in the third month, the ambulance aircraft in the skies indeed became "Turkish". Dr. Ediz Ural, twin doctors Dr. Yavuz Bilgin and Dr. Selim Bilgin became skilled flight doctors.

In those days, there were only five countries in Europe that had their own ambulance businesses with air vehicles solely dedicated to ambulance services equipped with intensive care units.

Wings Aviation received way more than it expected with the 139 flights conducted in 1989.

Turkish people would achieve everything with little support!

At the beginning of 1990, we transported an unconscious Dutch patient with major head trauma with mechanical ventilation, also with pneumothorax and arm fracture, to Amsterdam with a young doctor from our team. We faced an unfavorable headwind during the flight and were able to land in Schiphol after a 7-hour flight. I was in a cold sweat during this transport due to intense and stressful work involved. On our way back, in Innsbruck, I recommended never to use the KA200 aircraft for long flights and suggested that a faster aircraft for higher altitudes should be purchased.

Six weeks after my suggestion, the TC-EME Lear 35 aircraft equipped with intensive care components was launched to operation once again with the support of all DGCA employees!

I could never forget; the maiden flight of this aircraft was to Denver, Colorado, USA, with a completely Turkish team...

We really achieved incredibly successful operations in those days! Among these, I should mention the patients we transferred to hospitals that had advanced treatment capacities from the hospitals with limited capabilities in Turkey!


Hürriyet PAZAR

Sağlığın süpermenleri

CE: How did the air ambulance services that were launched with MARM Assistance turn into Redstar Aviation Inc.? Would you like to share the developments you experienced along the way during that period?

Dr. MŞA: A while after the start of Gulf War, an extremely unjust and improper sanction was imposed on Turkey in the field of aviation. Turkish airspace and all Turkish aircraft were obliged to have "war risk insurance"! This implied the payment of a war insurance that costed five thousand US Dollars even for short distance flights, and this type of insurances was only provided by global companies abroad.

In brief, the aviation companies in Turkey were officially being ripped off and unfortunately many of our aviation companies went bankruptcy in those days!

Explaining the war risk premium to patients' relatives or to insurance companies was very difficult. Tourism activities were halted due to the war that would last for an uncertain amount of time and we were struggling to cope with the damages it caused Turkey.

In the end, after resisting for two months, unfortunately we had to terminate this exceptional service due to a war triggered by the US in our region!

Months after, in late 1991, as I was told about the wish of Konstantin Mirechnichenko, who initially spoke to my assistant, stating that he was Aeroflot's Director to Turkey, and he was asking to talk with me about the establishment of an air ambulance company with our company and I thought to myself "perhaps I am hearing this wrong...", I asked him, "OK, so who will be the partner of MARM Assistance?" I was astonished to hear his answer, "Aeroflot"! I warned him on the assets we had at that time and for a moment I thought to myself whether I should direct Konstantin to bigger companies...

Then we rolled up our sleeves and applied to the Undersecretariat of Treasury, the Foreign Capital Department of the State Planning Organization; their executives welcomed us warmly and guided us. See what one could achieve when supported and guided by the state!

After the intense traffic between Rostov and Izmir that lasted nearly a year due to striking interpretation differences in terms of social, cultural and economic aspects, Aeroflot Company agreed to place four Mi-2 helicopters as capital in kind. We went through a very intensive work schedule for the preparation of all documents, the preparation of the company's founding charter in both Turkish and Russian and its authentication in both countries and for the fulfilment of all rules set by the Undersecretariat of Treasury.

The staff of the DGCA changed, yet their notion of supporting well operated companies remained! Finally, in 1992, Redstar Aviation was established. All the processes were completed swiftly and TC-EGE, TC-TIP, TC- MED and TC-BBJ helicopters started to operate with all avionics of Bendix King Silver Crown and with intensive care components.

In the first years, in addition to Russian pilots and technicians, we collaborated with Turkish navigation pilots to avoid any problems in communication with the control tower. Then the Russian and Bulgarian pilots who obtained Turkish licenses by passing the exams started to fly as single pilots as they knew Turkish. By the way, I cherish and remember our Bulgarian pilots Captain Dimitr Laskin,

Captain Julian Bogoey and Captain Sasho Mazaev with respect for their services and contributions.

I owe Captain Ibrahim Orazlı and Captain Şaban Mollaoğlu, who contributed greatly to Redstar Aviation and exerted great efforts for the adaptation of foreign pilots, a debt of gratitude during our navigation period.

I had the opportunity to witness the superior capabilities and virtues of Turkish pilots during the operations of Redstar Aviation through my excellent colleagues Captain Nihat Yılmaz and Captain Ali Ibanoğlu. They are enshrined in my memory with the outstanding services they provided.

In those days, the demand for a flight doctor in the operations of Redstar Aviation was fulfilled by the doctors of MARM Assistance. As we obtained the Private Ambulance Operating License in 1994, dear Reyhan Buruncuk who is "Turkey's First Female Flight Nurse" made her mark by achieving the longest and hardest tasks. She lingers in our memories as an extraordinary person indeed.

It would be appropriate here to recall a few of the services provided by Redstar Aviation.

During the second Gulf War, Redstar Aviation transferred US citizens evacuated from Iraq initially to Turkey and after their treatment or through operation "wing to wing" in Istanbul secured their return to their country via airplanes arriving from the US. This is why we worked with two US pilots in our Jetstream 32EP ambulance aircraft for a long period of time.

Although no military staff was transported on these flights, the evacuation of civilian Americans was held under the supervision of US military staff, as it seen in a photo by a CNBC television reporter published in a newspaper during that time.

Another interesting operation we conducted was our service regarding Formula 1 races held in Istanbul for 7 years. The air ambulance services via helicopters at Formula 1 races were provided by Redstar Aviation. Also, the transport services for certain VIP guests to the racetracks were carried out by our company as well.

Furthermore, the practices regarding all relevant EASA and HAI rules concerning the ambulance services with helicopters provided by Redstar Aviation were held biweekly, or once every month in case of busy schedule.

Scenarios such as the transport of a patient picked up by a helicopter under appropriate conditions and procedures via aircraft in long distance flights in pandemics were also executed in order to remain prepared at all times.

CE: Could you tell us about the air ambulance services conducted under the RedStar Aviation brand, particularly the operations held during the Earthquake in 1999?

Dr. MŞA: The transportation of patients from hospitals with limited facilities to developed healthcare

centers located in Ankara, Istanbul and Izmir made great progress in Turkey. The problem we faced in these operations was that even though four helicopters failed to suffice in the six-month period covering the summer season, one helicopter was more than enough during the winter. We were simply working during the summer to save for the winter! In the meantime, we were inviting flight doctors from the leading helicopter emergency medical service businesses in Europe, such as SAMU, DRF and NL for a while by covering their accommodation and allowances for maintaining the continuous training of our healthcare team at MARM Assistance.

Since its establishment, Redstar Aviation took part in natural disaster services without expecting any profit and operated in line with a certain mission.

During the Earthquake of 1999 in the Marmara Region, by collaborating with doctors from MARM Assistance and with three helicopters and two ground ambulances, we picked up patients with "crush syndrome" whose tissues were either partly or completely crushed or patients who had been exposed to compression from falling objects from healthcare tents or local hospitals and then transported them initially to the intensive care units of hospitals in Istanbul, Ankara or Bursa.

These patients were generally rescued from wreckage and since they had crushed limbs, they did not show any symptoms during the first hours, yet they were lost due to respiratory or circulatory failure.

The roads were damaged due to the earthquake and this led to heavy traffic, so we sent the ground ambulances back to Izmir and continued to perform our operations with air ambulances. We saved 108 patients in this way! This should be perceived as a huge success when we look at the recent number of lost patients with unknown causes of death during the earthquakes in Van and Elazığ.

Additionally, Redstar Aviation provided great support to Turkish paramedics exposed to the risk of "burn out" with the doctors from DRF, SAMU and Dutch doctors! This multinational healthcare team displayed incredible solidarity. As a result, during the "Helicopter Association International (HAI) Congress" held in 2000 with the support of a total of 11 countries and organizations such as the WHO, INSARAG and UNDP, Redstar Aviation received the "Igor I. Sikorsky Award for Humanitarian Service". In this way, this award which has been granted since1948, was proudly received by a Turkish helicopter emergency medical services business - Redstar Aviation.

But something was missing!

I kindly asked the organization to grant the same award to the Turkish Land Forces Command that worked devotedly while supporting Redstar Aviation in terms of fuel replenishment and accommodation while facing problems due to the lack of harmony between the civilian and military staff. I requested from the HAI President at that time, Matt Zuccharo, to grant an award to the Land Forces Command stating that the civilian company Redstar Aviation achieved its tasks on account of the collaboration of this military aviation institution.

My suggestion was not rejected and I delivered the award I received on behalf of them to the Land Forces Command in person in Ankara. It was unusual to grant the "Igor Sikorsky Humanitarian Aid Award" to military institutions. So once and for all, this award was received by a military force.

I should also mention that Redstar Aviation Inc. qualified for the ISO 9001:2000 Quality Management System in 2003 as well.

CE: Could you share with our readers the most interesting anecdote regarding air ambulance services conducted by the Redstar Aviation brand during the Earthquake of 1999?

Dr. MŞA: We have incredible memories. As Redstar Aviation, we not only performed operations for the Izmit and Düzce earthquakes in 1999, but also for the earthquakes in Adana, Afyon - Dinar and Milas. I have many anecdotes; let me mention an interesting one.

We transported a woman and a man with "crush syndrome" to the German Hospital in Istanbul; we transferred a child to Başkent University Hospital in Ankara and another child to the Hospital of Uludağ University in Bursa... The identities of the patients and their information were registered at the Medical Center of MARM

Assistance that operated 24/7. All four patients were aided by respiratory devices and were being monitored. First, the female patient recovered and the device was removed. After seeing her husband being treated in intensive care, her question was "...what happened to my children?" MARM Assistance Dispatchers identified that the surnames of the two children who were under treatment at Bursa Uludağ and Ankara Başkent University hospitals were the same as that of the female patient and her husband. The next day, the child in Bursa was removed from the respiratory device, so we took him from Bursa to the German Hospital in Istanbul. With support from respiratory devices, we transferred the other girl from Ankara Başkent University Hospital to Istanbul as well. She was also removed from the respiratory devices and survived. Words fail to describe the happiness felt at the reunion of the family when each member regained their health...

Witnessing this operation while contributing to it, Dr. Eelco Dijkstra later shared it with the reporters of British Daily Mirror and Dutch Algemene Dagblad and these newspapers published it! I refrained from asking for a copy in order to avoid any misunderstandings in such turmoil!

CE: The air ambulance services that were launched as part of a private enterprise and then sustained by Redstar Aviation Inc. were diversified and extended across the country after 2006 as services also provided by the Ministry of Health. What was your role in this process?

Dr. MŞA: We launched the notion of maintaining air ambulance systems by the state through "service procurement" first during the operations of MARM Assistance and in the following years, we sustained this system as Redstar Aviation Inc. By the way, believe me even I do not remember the number of workshops and meetings I attended at the Ministry of Health!

As Redstar Aviation we collaborated with various public institutions on limited projects.

The work scope of Redstar Aviation Inc. and the Ministry of Health in air ambulance services was quite different. The greatest leaps in healthcare tourism in Turkey were achieved by Redstar Aviation Inc. with the transfer of patients from regions with limited facilities to hospitals with advanced treatment capacities. Comments from foreigners such as "I received excellent treatment in Turkey" were recognized as positive feedback for promotion.

CE: Thank you for all your assessments that you've shared...Thank you! May you live long!

"Certain moments require sharing; and certain people turn those moments into memories!" I would like to share this statement that I recalled during my interview with Mustafa Şevki Ataç.

It's been my own pleasure to meet and know Dr. Mustafa Şevki Ataç; may he live in health and peace... We are lucky to have the establishment of this company in Turkey, Redstar Aviation Inc. May it fly safe and secure!

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Chartered Flight Champion Tailwind

Provides Devoted Support to European Return Flights During Global Crisis

In this interview, Mehmet Bostan, Tailwind Airlines Managing Director discusses how the company is meeting the challenges faced worldwide due to the pandemic. With a confident short-medium term focus, Tailwind Airlines has no plans to change their fleet or crew and plans to balance their customer base by offering services in the Eastern region.

Aviation Turkey: Mehmet Bostan, thank you for your interview with us. Could you please start off by giving us some information about Tailwind Airlines, founded in 2006, and how the company has become one of Turkey's successful charter airlines?

Mehmet Bostan: Tailwind Airlines has been operating mainly touristic charter flights until today after obtaining its operating license in 2009. The majority of our customers are tour operators who bring tourists from Europe to our country during the summer and the travel season for this customer group lasts about 7.5 months.

Aviation Turkey: Along with offering charter flights, we know that your company also offers ACMI-Wet Lease service. Could you tell us about this service?

Mehmet Bostan: As I mention in my previous response, due to the length of the summer travel season we need to conduct other businesses during the 4.5-5 months aside from the summer season. ACMI-Wet Lease service comes first in these other activities. This service is the periodic leasing of our aircraft with its crew to foreign airlines that require high capacity aircraft especially during the winter. In such collaborations which have a lower turnover, our objective is to cover some of our fixed costs incurred during these winter months.

Aviation Turkey: Tailwind Airlines conducts flights to many of touristic points in Turkey from many European and Near East countries and contributes to the tourism industry by the transport of a large number of tourists to our country. We know that you plan to expand to Asian countries in the near future. Considering the recent developments, could you inform us on your new road map?

Mehmet Bostan: Tailwind Airlines does not consider making any changes in its plan regarding charters and ACMI activities in the short and medium term. Last year we decided to renew our fleet. There is no deviation from this decision; the recent developments have caused a delay in this plan. With our increasing number of aircraft and renewed fleet, our aim is to become a more competitive charter airline

and ACMI operator in the upcoming period.

Aviation Turkey: This unprecedented Coronavirus outbreak has had a severe affect the aviation sector and the tourism sector. How has this pandemic changed and updated your roadmap? Could you please tell us about the activities and operations you plan to carry out in the forthcoming period?

Mehmet Bostan: As I also mentioned in my answer to your previous question, there is only a delay in our plans, no other changes have been made. Most of our flights have been conducted from Europe since our foundation, but in recent years our country has increasingly become a center of attraction for the citizens of eastern countries. We aim to increase our flights especially during the winter period by creating a balanced distribution of customers in both directions.

© Tailwind Airlines

Aviation Turkey: What would you like to say about emergency flights that you conducted in Turkey and internationally during this period?

Mehmet Bostan: Charter airlines are often utilized by companies during difficult times. In this extraordinarily difficult period, we have brought together, via tour operators or various intermediary companies, the citizens of various countries who were stranded abroad due to the suspension of scheduled flights and who wanted to return to their country. We transported them to their home countries with our team providing devoted support, and this effort continues. In this way, we help people to reach their homes and at the same time we boost employee morale by not suspending our operations completely and also achieve a small amount of cash flow.

Aviation Turkey: What measures have been taken by your company related to COVID-19?

Mehmet Bostan: In addition to the measures required by legal regulations, we follow the policy to reserve toilets for passenger use and those for the crew only

on our aircraft. Our flight attendants use masks and gloves throughout the flight. Also, we recently started to use protective clothing. For short-haul flights, food and beverage service was ceased except for bottled water in order to limit contact with the passenger. Additionally, we have a sufficient number of masks on our aircraft to be used by all passengers when necessary. In-flight magazines were also removed to limit the risk of contamination. At the end of all flights with passengers, our aircraft are disinfected against the Covid-19 virus.

Aviation Turkey: In the midst of the flight bans which started in March and are expected to continue for a while, what are your short-medium term plans regarding your fleet and staff?

Mehmet Bostan: We continue our preparations with the assumption that the flights will resume in line with the planned schedule as of July. Although the government has recently forbidden businesses to lay off workers under the current situation, we have previously made our decision in this direction, so we have no intention to surrender any of our employees. However, in this process, we strain to make maximum use of the opportunities provided by our state. To this end, we have applied for the Short-Term Working Allowance for our employees.

Aviation Turkey: With aspirations of getting back to normal in the middle of summer, the aviation industry is expected to recover in our country. What is your opinion regarding this process both for Tailwind Airlines and for the summer season in the tourism sector?

Mehmet Bostan: We do not expect to return to normal in the middle of summer, as if nothing has happened. But, as we have a customer portfolio that places great importance on vacation programs, we do not expect them to spend summer at home this year. If the negative impacts of the outbreak really weaken and become tolerable, we believe we can compensate for the losses we suffer, not in 2020 alone, but into 2021as well.

Aviation Turkey: Mr. Bostan, do you have a message that you would like to convey to our readers?

Mehmet Bostan: As we all know, aviation, with its high costs, is one of the industries that is affected first and foremost under negative circumstances. However, Covid-19 reminds us that the most important thing in our life is “health”. I believe that this process can be overcome by unity and solidarity; we have to follow the warnings of experts to stay healthy. I wish everyone good health and I hope that our lives will return to normal soon

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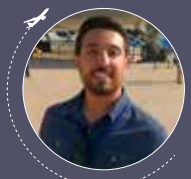

Gökhan Demirdöken,
Researcher & English
Language Instructor

English as the Lingua Franca in Aviation: **The Effects of Globalization and the Challenges Faced by Aviation Professionals**

One-hundred and twenty-seven countries, three-hundred and twenty-two destinations, yet just one commonality: the English language. Turkish Airlines, the national flag-carrier and the shining star of aviation in the world, flies to more destinations than any other airline in the world. Globalization, as defined in the Cambridge Dictionary, is the process by which particular goods and services, or social and cultural influences, gradually become similar in all parts of the world. Providing a high-quality air transport service requires the continuous teamwork of more than five thousand pilots, twelve thousand cabin crew, two hundred technicians, six-hundred and twenty-seven executives and another ten thousand employees all around the globe. Yet, globalization poses a big threat for the whole aviation industry for the sustainability of its well-being if it turns a deaf ear to the impact of English in various components of aviation.

Aviation English can be defined as a language specifically used by pilots and air traffic controllers (ATCOs) for the purpose of air traffic communication. It functions as the cement that keeps all aviation professionals united and helps them to meet on common ground. In that sense, it would be accurate to regard it as the lingua franca in aviation. The speakers of this lingua franca mostly include pilots and air traffic controllers. Hence, it may seem that Aviation English strikes these people's fancy. However, the use of Aviation English is beyond the borders of standardized use of the phraseology by pilots and air traffic controllers because it also embraces the non-standard communication among other components of aviation: technicians and ground handling staff who rely on Aviation English for mutual understanding of verbal and written messages. What's more the most striking role of non-standard use of Aviation English can be seen in abnormal situations when the communication among pilots, the communication

between pilots and air traffic controllers, and even sometimes the communication between the flight crew and operations control centers need to go beyond what is already stated in the handbooks, manuals, and/or checklists. In such situations, each component should be capable of maintaining effective communication between each other. As a consequence, it is of great importance for the aviation industry to better analyze and understand these aviation professionals regarding their proficiency in both standard and non-standard use of Aviation English.

The only possible way to comprehend the challenges of these aviation industry professionals when using Aviation English as lingua franca is to associate the challenges brought forth by globalization. The ever-expanding web of flight destinations means that we are reaching more and more destinations and widening our horizons which have increased the demand on professionals for various roles ranging from the ground handling staff to pilots, safety inspectors to air traffic controllers, line maintenance staff to educators. In the end, it is as if people from all parts of the world with

various background gather in the same giant hot air balloon basket, venturing upward into the great expanse, gazing towards the sky and our future. In this regard, the changes in the needs of the aviation industry is very much like the melting pot of American culture. The concept of the melting pot refers to the integration of the various cultures of US residents, as they combined and melted into a mix that welcomed people of different background with open arms. Over the years the same process has been seen in aviation as well. The completion of this process has shed light upon two realities. On the one hand, this giant hot air balloon now hosts aviation professionals from many different nationalities. On the other hand, the only thing that keeps it roaring in the air is their cooperation thanks to Aviation English. Even so, it was presented by Dr. Hinnerk Eißfeldt that the number of native speakers in aviation is below 30 percent which means that understanding a non-native speaker of Aviation English and maintaining effective communication with that person is now more crucial than ever.

Pilots are one of the most significant components of non-native speakers of Aviation English. The latest report published by GOOSE Recruitment and Flight Global supports this statement with clear statistical representations. With almost one-thousand and four-hundred pilots taking part in the survey, Lufthansa, Air France, Virgin Atlantic, Delta, KLM, Emirates, Qantas, British Airways, Air New Zealand, and Singapore Airlines were perceived the best 10 airlines to work for. What is interesting with these airlines is that Emirates, for instance, has pilots from 52 different nationalities, Singapore Airlines has 28.5 percent of non-Singaporean origin workforce with a total of more than 2,300 pilots. The annual report published in February 2020 by the Turkish Directorate General of Civil Aviation (DGCA) states that there are 669 pilots of foreign origin which makes up 7 percent of all pilots in Turkey. More interestingly, out of its almost 5,500 pilots, Turkish Airlines employs pilots from more than twenty-two different nationalities. These facts clearly show that pilots who are non-native speakers of Aviation English make

up a bigger proportion of English-speaking employees in aviation when compared to native speakers. Consequently, their proficiency and challenges in Aviation English have, so far, had various consequences, and there will more challenges in the future as well.

Pilots' challenges regarding the use of Aviation English have already been brought to the attention of aviation authorities. One of the most significant steps was taken by the Federal Aviation Administration (FAA) of the USA and a series of reports have been published bringing these challenges to light in no uncertain terms. As stated above the main issue aviation professionals face is the mutual understanding and intelligibility of native English speakers and non-native English speakers which is the focus of the sixth report of the FAA. Although the responses of pilots indicated several issues that need to be analyzed in-depth, it should be noted that pilots all met on common ground when it came to the communication between native English-speaking controllers and non-native English-speaking pilots which is a very common phenomena in US airspace. The most significant findings were centered around such issues as failure to communicate, English language proficiency, slower speech rate, and taxi clearances.

The failure to communicate seems to be the biggest concern among others. Because of the busy air traffic, the controllers are under a heavy workload requiring higher-management skills regarding the control of both ground traffic and air traffic. That's why they tend to speak really fast which negatively affects the comprehension of the message by the non-native English-speaking pilots. This also puts a lot of pressure on the pilots. On the other hand, just the opposite scenario takes place in a non-native English-speaking airspace between a native English-speaking pilot and non-native English-speaking air traffic controller. In such cases, the non-standard use of the language by air traffic controllers or even the use of a mother tongue affects pilots negatively as well. Unfortunately, these examples have had recent vivid incidents. The Pegasus incident on February 5, 2020 is one of them. When the safety of all passengers and the crew were in the hands of the Turkish non-native English-speaking captain pilot and the Dutch non-native English-speaking first officer, their communication with each other and with the Turkish non-native English-speaking air traffic controller were reported to be one of the factors leading to 3 casualties and 180 injuries. It might have been a totally different case if the informative message by the ATC had been given in English. In such instances, English turns out to be a lifesaver as it was in US Airways flight 1549 which later was found to be the invaluable teamwork of two native English-speaking pilots. If it was not for their mutual understanding of each other, they might have ended up wasting their precious time to try to comprehend what they were saying to each other and they might have also become aviation martyrs rather than real heroes.

Another reported challenge of pilots was the rate of speech in English. The underlying reason behind this issue is clearly the nature of language itself. While the native-speaking pilots or air traffic controllers tend to use English in a faster speech rate naturally, the other group, non-native

English-speaking pilots or air traffic controllers tend to transmit the same message more slowly. The report of the FAA exhibits this case clearly. When the speech rate becomes faster, it becomes more difficult to understand which leads to misunderstandings or requests of clarifications and repetitions. No matter how easy it may seem, this actually causes a waste in a significant amount of time. As a consequence, the FAA has suggested that further in-depth analysis should be conducted on the optimal speech rate for the delivery of ATC messages. Furthermore, as a researcher of Aviation English, it is of my hypothesis that the breakdown in the comprehension process of ATC messages also affect the pilots' readback performance which is an important component of safety in the air and on the ground. All in all, challenges in the use of Aviation English need to be analyzed more and corrective actions should be put forward for the authorities in the aviation industry.

Aviation English as lingua franca is in the heart of another group of aviation professionals: the air traffic controllers. Similarly, Atlanta Airport, Beijing Airport, Los Angeles Airport, Tokyo Haneda Airport, Dubai International Airport, O'Hare Airport, Heathrow Airport, Shanghai Pudong Airport, Hong Kong International Airport, and Charles de Gaulle Airport are in the heart of air traffic as of the latest statistical reports. Out of these top ten busiest airports, more than half of them, 6 airports are located in countries where English is not the mother-tongue of its residents. This highlights the fact that the safety of air traffic in the busiest airports across the world are ensured by non-native English-speaking air traffic controllers. These professionals need to overcome an important problem each and every second of their work shifts: intelligibility. Resulting from the nature of radiotelephony which is used as the major means of communication between ATC and pilots, it sometimes turns into a real challenge to make yourself as clear as possible and to comprehend the messages. The background noise, communication breakdowns, interruptions of other traffic on the channel, and the heavy managerial workload all add up to significant challenges faced by air traffic controllers in terms of using Aviation English. Although globalization seems to offer new job opportunities and better salary in these crowded airspaces, it needs to be taken into account that there is always a continuous threat to air traffic safety with regards to Aviation English. For instance, deputy CEO of Dubai Air Navigation Services Ibrahim Ahli, the head of Air Traffic Control Al Thani, and Duty Manager of DXB Tower Hassan Shaheen, they all have non-native English-speaker origins and they work with a group of both non-native English-speaking air traffic controllers of UAE origin and native English-speaking air traffic controllers of various nationalities within the same team. Consequently, they all rely on Aviation English to maintain effective communication with each other and air traffic.


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The case of Dubai International Airport with a total of around 1,100 flights per day is just one side of the coin. The other side includes busy airspaces with air traffic controllers who all have non-native English origins. Turkey, with its 1,759 air traffic controllers according to the statistics published by the Turkish

DGCA, offers safe and secure ATC service 24/7. Yet, the second case here is liable to be threatened by another linguistic factor: the use of mother-tongue. Although, it is mandated by ICAO that English is the official language for air traffic communications, the problem of switching to the mother-tongue is one of the biggest challenges of air traffic controllers all around the world. These exchanges in mother-tongue between pilots and air traffic controllers make it difficult for other air traffic to catch up with the radio messages. What's more it can be listed as a distraction for both sides in maintaining operations especially under non-normal scenarios. However, there are some instances in which things may easily spin out of control. "We are at take-off" was one of the last statements recorded in the cockpit of KLM's Boeing 747 on March 27, 1977. Although, the role of Aviation English in the Tenerife disaster will be discussed thoroughly in the upcoming issues of Aviation Turkey magazine, it should be noted that no matter how proficient the air traffic controllers or pilots are, it is for sure that they can never be the same and they can never foresee how a slight difference in the understanding of a statement may cause one of the biggest disasters in the history of aviation.

Last but not least the backbone of aviation: line maintenance technicians... As suggested by the American educational theorist David Allen Kolb, the experiential learning cycle all starts with hands-on experience, it goes on with perception and cognition respectively, and finally ends up with behavior. By analyzing the professional learning cycle of technicians with Kolb's experiential learning theory, it can be concluded that the invaluable service these people provide for the safety of aircraft has two inseparable components: manuals and implementations of those manuals. While the latter requires a good understanding of the former, in fact, everything relies on a deep linguistic resource. Without full control of Aviation English jargon, including the technical terms, line maintenance technicians cannot be expected to best serve their companies. Yet, apart from the challenges of pilots and air traffic controllers, these professionals have a bigger gap to fill in. Aviation English as lingua franca once again dominates the aviation industry with its two main aircraft manufacturers Boeing and Airbus which meet on common ground when it comes to publishing maintenance manuals. Consequently, technicians feel the necessity to be proficient not only in speaking and comprehending English but also in understanding the written manuals detailing every inch of an aircraft. No matter what their nationalities are, line maintenance technicians have and will always rely on English in our increasingly globalized world.

To come to an end reaching more and more passengers and flight destinations as a result of globalization has unignorable consequences for all aspects of aviation both on the individual level, the corporate level and on regulatory levels. Challenges regarding the use of Aviation English by aviation professionals are most definitely of high priority as they have the potential to result in irreversible outcomes. As a result, the sustainability of the industry's well-being is all in the hands of Aviation English with its various components. In our widening world it is essential that we continue identifying communication challenges, both technical and linguistic, as these challenges will continue to emerge as the aviation industry evolves

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Dicle Demircioğlu

Pınar İlki Emekçi

A New Era in Airport Terminal Design

In our interview with Dicle Demircioğlu and Pınar İlki Emekçi, the Joint Managing Partners of GMW MIMARLIK, we discuss the company's impressive international experience, award-winning projects and concepts, and the protection and promotion of human and environmental health as an integral part of post-pandemic architecture and design.

Aviation Turkey: First off, thank you so much for your time for this interview. GMW MIMARLIK is an architectural office that is known for various projects including Airport terminal projects. Could you briefly inform us on the structure of your company?

DD: GMW Architects, a London-based company founded in 1949, is an architectural and interior design office with many years of international experience. Under the leadership of Ali Özveren, one of the senior partners of the company at that time, they came to Turkey for the first time in 1997 upon winning the competition opened for the Istanbul Airport New International Terminal project. Following the completion of this project in 2000, GMW MIMARLIK was established in Turkey, again under the leadership of Mr. Özveren. Pınar.and I had managerial duties since 2008 and became partners of GMW MIMARLIK in 2011 after being approached by Mr. Özveren to develop and transfer the knowhow and experience gained over generations and to ensure sustainability. We are presently the joint managing partners responsible for the overall management of the company. Ali Özveren is of course our biggest supporter as our founding partner. In the meantime, GMW Architects was acquired by another British architecture company in 2015, so there is currently no organic relationship between the two offices.

Since the date of our foundation, we, as GMW MIMARLIK, have been competing especially on international platforms, undertaking large-scale projects and producing projects at international standards and with up-to-date technologies by maintaining our professional principles, organizational culture and ethical values, and by continuously improving ourselves. During this 20-year period, we have taken part in various important international projects, especially in transportation projects in many different countries of the world.

The services we provide can be summarized as architectural project and design coordination services, design management, design and technical evaluation and consultancy, and BIM (Building Information Modeling) management services, from the feasibility and concept project stage to the delivery stage. We perform all these processes in the BIM environment using state-of-the-art technologies.

As a result of the design management work of a prestigious project we assumed in Montenegro, we opened an office with an average of 15 staff there in 2018 and currently we have licenses to perform architectural projects in Montenegro.

Aviation Turkey: In the aviation industry, we know your company as the architect office of the Ataturk Airport International Terminal constructed in 2000 and you have fulfilled many other projects since then. Do you have other completed or ongoing projects in Turkey after the Ataturk Airport International Terminal project?

PIE: Immediately after the completion of the Ataturk Airport New International Terminal in 2000, we assumed the expansion project of Ataturk Airport. Then, we undertook the redesign project of the Antalya 2nd International Terminal, which had been designed by Tekeli-Sisa

Architectural Office for five million passengers in the 1990s, and we redesigned it according to the seven million passenger capacity and present-day conditions. Within this scope, we adapted the existing concept and prepared the as-built projects in record time, as in the Ataturk Airport project, until the completion of the construction, and performed field supervision. Mus Airport was our latest project in Turkey which was designed by our company as well.

Due to our lack of experience in the Turkish tender process in our initial years, we missed opportunities in some important airport projects; much less experienced companies managed to obtain prequalification while we were unable to get prequalified. Besides, since we quietly focused on producing only the best projects with the motto "the best advertisement is our performance", which is one of our fundamental principles, our company was not well recognized in the local market except for very few people who were interested and curious in this matter. However, thanks to this principle, we have become more well-known abroad, as the groups we work with on international projects offer cooperation in different projects.

We never said we would do every project; on the contrary we developed ourselves in airport terminals and additional buildings. As a result of the importance we place on specialization, we have had the opportunity to take part in very significant international airport projects. We have worked with world-renowned consultants and multinational project teams on these projects. Accordingly, we have gained considerable knowhow and large-scale project experience at different international standards. Therefore, our projects in Turkey were mainly for the private sector, where the international experience in large-scale projects is obligatory.

Atatürk Airport

Aviation Turkey: GMW MIMARLIK performs activities in airport terminal projects throughout the globe as well as Turkey, either directly or through consultancy services. Could you please talk briefly about these projects?

DD: We expanded our international experience, which was previously limited only to the Middle East, North Africa and the Balkans, by adding the experience we gained from our projects in Europe and Asia in the last 5 years. Assuming roles in airport projects in more than 20 different geographies such as Cairo, Medina, Skopje, Riga, Moscow, Riyadh, Tehran, Rome, Amsterdam, Kuwait, the Philippines and Tashkent has been very valuable for us in terms of know-how and experience that we gained. In each of these projects, we provided services at different scopes for the terminal building and/or any other functional building available at an airport, according to the requirements of that project and the employer. In some, we undertook all architectural project

Riyadh Airport

services from the concept project stage until the completion of the as-built projects, in some others we prepared only a concept project, or we performed project development, coordination and as-built projects for an existing concept.

Besides these, we would also like to talk about our terminal planning consultancy services which we are proud of. After receiving consultancy services from international companies specialized in terminal planning during airport projects for which we have been providing architectural project services for many years, we have started to provide consultancy services in this domain in the last few years, thanks to the related training we have added to our knowledge base in different projects. In 2016, we provided terminal planning consultancy to airport administration within the scope of the Rome Fiumicino Airport North Campus Master Plan Revision and then to international project groups for the Amsterdam Schiphol Pier A and the Kuwait Temporary Support Terminal.

PIE: Terminal planning consulting starts with the determination of passenger capacity, for which the terminal building will serve, and then continues with determining the number of areas and operators that will be needed, taking into account several criteria

Skopje Airport

such as transaction times specific to the geography and passenger demographics. Then, the layout of these areas and operators are prepared with options in accordance to international standards, laws and regulations specific to that country, and the management criteria and objectives of the businesses and administrations. By taking the project budget and schedule into account, the building size and layout are finalized by discussing the details with all stakeholders.

Sometimes we come up against those talking about type-terminal design, but the terminal requirements of each country or geography are different; the users, climate, budget, laws, operators are different and accordingly the terminals should be different. Every day technology is developing, environmental and human health awareness levels are increasing and such aspects should be reflected in the planning of each new terminal. Sometimes, a specification or planning we have prepared years ago comes back to us in the form of a requirement list for a new terminal, or an employer planning to start the activities says "you probably have an available planning/design for us". In such cases, we may have to tell the employer why this work should be different. For all these reasons, we expect employers to be willing to work with specialized companies or consultants.

Aviation Turkey: Your Company adopts a modern and environmentalist approach to airport terminal projects, and you prioritize passenger comfort with this approach. You have been awarded by Airport Council International (ACI) three times for achievements in your projects. Could you tell us about these successes?

PIE: Until the early 1990s, airport terminals were considered as prestigious buildings because they were the gate of the country that passengers had to use for flights. In the early 2000s, commercial activities

Tashkent Airport

gained importance and airports turned out to be a kind of shopping mall, and this is the period when the "passenger" is considered the "customer". Recently, airport terminals, especially large terminals referred to as "hubs" used for transfer/transit purposes, are regarded as the buildings preferred to be visited or stopped by. Accordingly, the "passenger" is now seen as a "guest" and his psychology, comfort and quality of the time spent in the terminal has started to be valued above anything else. Today, areas such as butterfly gardens for relaxation, entertainment, and areas for sports and art have started to be allocated within the terminal buildings. With the increase of the importance given to the environment with this change, the service quality of a terminal that was previously measured in direct proportion with the area per person is now measured with the quality of the place rather than the area itself, and optimum areas are recommended instead of large areas. In addition, the aspects such as accessibility, gender equality, local differences and needs, and the developments in technology are reflected in architectural projects more than ever before.

Airport Council International (ACI) conducts surveys on Airport Service Quality every year and determines the best airports of the year, based on the category, with the feedback received from users. Although this

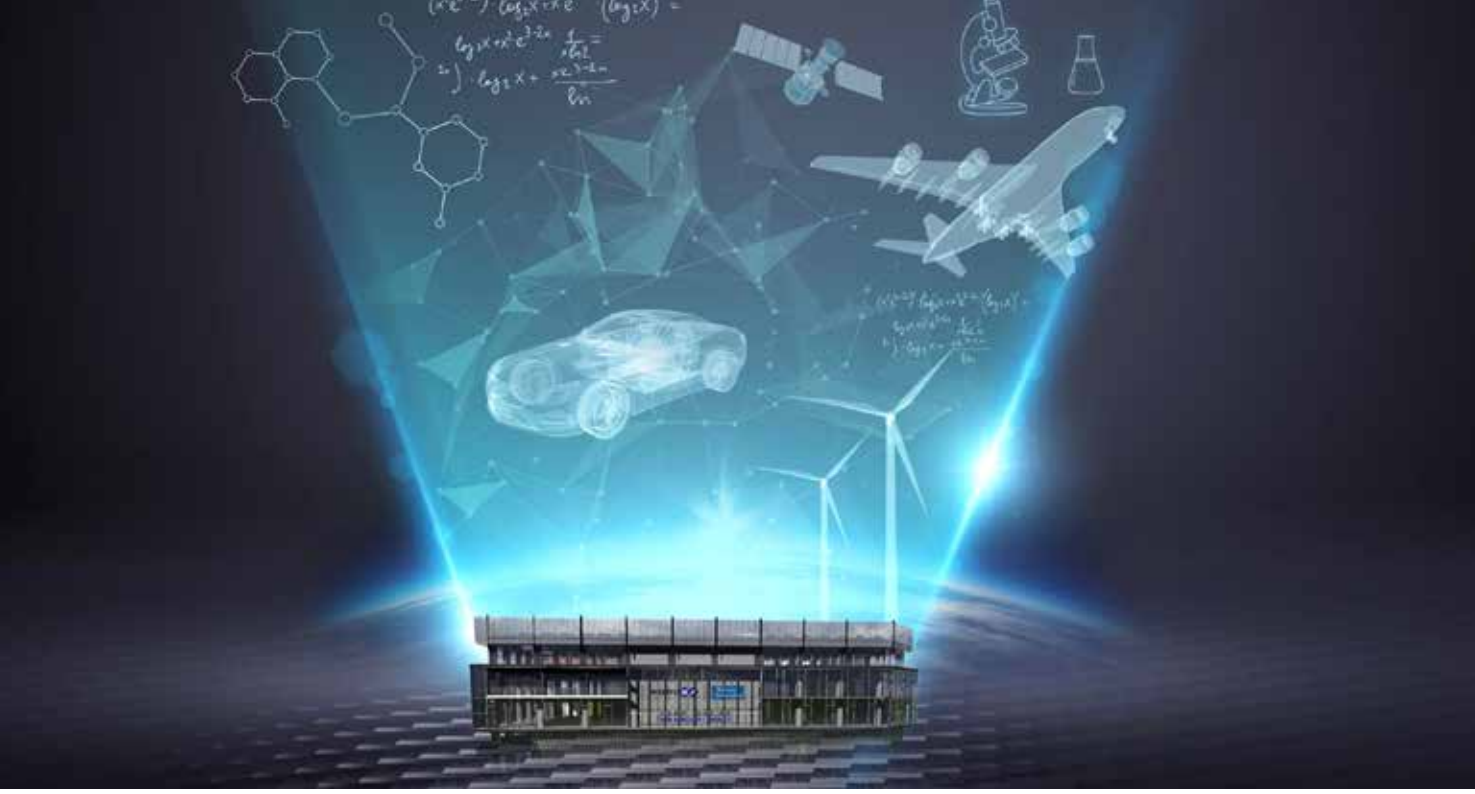
Medina Airport

selection seems to be related with the operator, it is an indication of the satisfaction obtained as a direct result of our architectural design. As a consequence of many architectural decisions experiences are impacted, from the transportation routes of the terminals to the waiting times, from the spatial impressions of the passenger to the layout of the commercial area, from the efficiency of the operating offices to the easy direction-finding system. Our Macedonia Skopje Airport was deemed worthy of this award four times by passengers since its launch. Many of our airport terminal buildings, not only Skopje, but also Ataturk and Medina airport buildings, have been deemed worthy of this award several times too.

Aviation Turkey: Following the COVID-19 outbreak, restructuring activities and measures are taking place across all sectors. The most critical measures will probably be taken in the aviation industry, which is the most affected sector. Within the framework of these severe measures, does your company plan to carry out restructuring activities for airport terminal projects, as the heart of airports and accordingly the aviation industry? What kind of activities are you planning for airport projects that you are currently working on in the new era?

DD: Frankly speaking, we think that not many different structuring, programs and plans can be implemented in the long term due to the COVID-19 outbreak, especially at airports. Even before the COVID-19 pandemic, we have always prioritized flexibility and adaptability, and the importance of this approach now becomes more apparent. Instead of designing a building that has an economic life of 30-40 years according to an epidemic that exists today but may not repeat for the next decades in the same way, we believe it is necessary to design buildings to have flexibility and adaptability by considering all possible different scenarios, having positive effects on environment and human health and concepts that will not lose their functionality for many years.

Moreover, we can say that the global warming and climate change issue, which is said to be directly associated with this pandemic by many people, will be much more determinant for large investments like airports in the future. On the other hand, in the aftermath of this pandemic, it is possible to say that the effective utilization of big data and technology, which has been highlighted at airports for quite a while, will continue to expand and become a crucial mechanism in this sense. Such efforts, which have been implemented at airports to increase passenger satisfaction, will now be used more widely and effectively to serve the measures to be taken



Sabancı University Integrated Manufacturing Technologies Research and Application Center

Sabancı University Integrated Manufacturing Research and Application Center (SU IMC) is an industrial-scale research and technology development center that provides laboratory testing, prototype manufacturing, design and simulation services in the scope of composite materials and additive manufacturing especially for Aerospace and Automotive Industries. It also provides consultancy and training services to governmental organizations and industrial corporations.

The center brings Sabancı University and Companies together under the same roof to create solutions for companies in areas of research, development and transformation. This unique university-industry ecosystem houses designers, engineers, production process managers, doctoral students, postdoctoral researchers, faculty members, and incubators/ entrepreneurs who play a vital role in composite technologies. Thus, SU IMC serves its partners at every stage of the product development life cycle, starting with basic research, continuing with prototyping, and ending with mass production.

SU IMC provides facilities for both basic and applied research, product development, graduate and life-long education. It acts as a center for incubation services as well as commercialization opportunities in composite manufacturing technologies and has the capacity of employing 15 faculty members, more than 90 graduate and undergraduate students, and about 40 researchers, engineers and administrative staff.

SU IMC is the First University Center in Turkey to have acquired the AS9100 Quality Management System Certificate

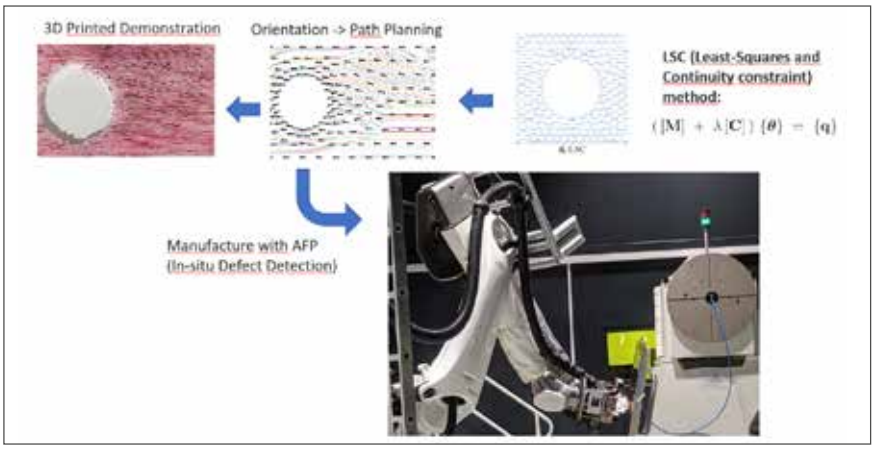
The AS9100 Certificate has critical importance in the international platform for institutions operating in the Aerospace and Defense Industry. SU IMC, which started its activities as of 2018, was audited in October 2019 and was approved by the IAQG (International Aerospace Quality Group) in March 2020 as a result of a successful audit. Built on a closed area spanning 15,000 m2 with a 3,350 m2 laboratory infrastructure, SU IMC became one of only six such centers worldwide, and the first university center in Turkey with AS9100 Quality Management System certification for Aerospace organizations. SU IMC also has the TS EN ISO / IEC 17025 certificate, which is a laboratory accreditation certificate, approved in February 2019.

Mansur Çelebi, PhD Strategy & Business Development Manager IMC & CTCE Sabanci University

Research Studies

Core research areas at SU IMC are as follows;

•*Composite Design, Analysis and Manufacturing*



•Modelling and Vibration Control of Robotic Machining Operations, Tool Dynamics, and Virtual Machining

•Thermomechanical Stress, and Fracture Analysis

•Nano and Micro Scale Composites

•Functional Polymers

•Additive Manufacturing (Metal and Polymer)

Aerospace Projects

Currently, at SU IMC, there are 5 ongoing EU funded projects, 11 projects with Industrial Partners and 20 government-funded TUBITAK projects with a total volume of 115 M TL.

Some of the important aerospace-related R&D projects are;

•Automated Fiber Placement Method for Aerospace Applications,

•Scalable and Efficient Manufacturing of Thermoplastic Composite Aerospace Structures,

•Health Monitoring of Composite Aerospace Structures,

•Automated Repair Patch Production for Aerospace Composites,

•Design and Manufacturing for Crashworthiness and Light Weighting,

•Additive Manufacturing Novel Process Development,

•Material Development and Functional Nanomaterials,

•Characterization Methodologies of Prepreg Systems.

Composite Technologies Center of Excellence (CTCE)

Established as a result of collaboration between Kordsa and Sabancı University, the Composite Technologies Center of Excellence is focused on technology development covering the entire value chain in the areas of composite and additive manufacturing. The Composite Technologies Center of Excellence is the first university and industry cooperation model in Turkey and it will ensure that Turkey can make a difference with advanced technology on the global playing field and even to become a global power in this area and a player in the big league.

Kordsa, located in the same building, develops innovative and unique intermediate products and applications in composite technologies for a variety of industries. Producing thermoset prepregs for the aviation industry, Kordsa boasts a wider product range and more flexible production capabilities thanks to the strength it gains from weaving its own fabric. Kordsa's second R&D center enables it to not only to develop products but also to engage in the mass-production of prepregs, fabrics, and panels for the composites industry.

In the Composite Technologies Center of Excellence, an open innovation habitat has been created and all stake holders and universities working on composite technologies are invited to benefit from this one of a kind innovation zone.

SU IMC's support for the Battle against Covid-19

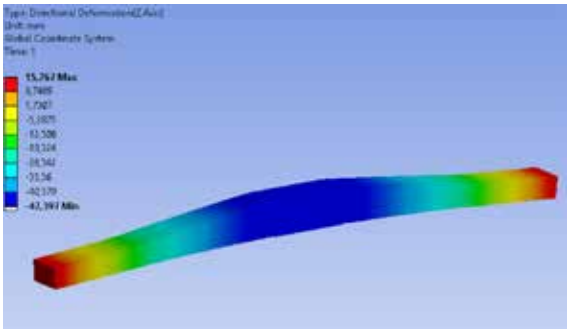
The Composite Technologies Center of Excellence has opened the entire infrastructure to the use

of the Ministry of Health for the design, analysis and prototypes of the medical devices and parts used for Covid-19 treatment and personal protective products of healthcare workers. Additionally, Sabancı Holding donated 10 tons of Antimic, a new generation disinfectant, which was developed by SU IMC academicians and provides hygiene for up to 3 months, to the Ministry of Health.

Antimic is water-based and is free of heavy metals and permanent toxic chemicals that endanger human health. It has a permanence on the surface on which it is applied provides comfortable protection with its very thin, glassy and elastic protective layer that is formed on living spaces and clothes. This cover prevents bacteria and viruses from clinging to the environment.

In addition to that, SU IMC, by using its additive manufacturing capabilities, has been supporting the production of metal and plastic spare parts of medical devices used in the Covid-19 treatment.

A portable and easy-to-use ventilator has been designed to eliminate the troubles experienced due to the large and bulky existing respiratory devices used in intensive care units and also inadequate number. Thus, the room where the patient is located can turn into an intensive care room and the treatment is accelerated.



Although the designed device is a portable ventilator (mechanical breathing apparatus), it also has electronic control units with respiratory support modes required for Covid-19 treatment. This enables the use of this mobile ventilator in any patient bed or ambulance with medical oxygen and air connections without the need for an intensive care bed.

The design and technical drawings of the ventilator were completed and the material specifications were determined. In this study, Prof. Dr. Bahattin Koç and his team carry out the design, validation, prototype production and testing of the ventilator together with ELAA Technology, a digital medical technology company

Research and Development Laboratories

In the ***Computational Mechanics Laboratory***, novel modelling tools have been developed for a wide variety of problems including variable stiffness design of composite structures for metal additive modelling.

The ***Advanced Composites Manufacturing Lab*** aims to manufacture high quality engineered composite parts utilizing



both conventional and robotic based manufacturing technologies through process modelling to explain process-robot interaction, robot motion and path planning using physical models. The lab is equipped with Robotic ***Automated Fiber Placement (AFP) Machines*** for thermoset and thermoplastic composite manufacturing. There are also industrial-scale ***Hot Press, Robotic Machining and Abrasive Waterjet Machining*** of composites and metals, and additive manufacturing of composites.

Autoclaves are essentially heated pressure vessels usually equipped with vacuum systems into which the bagged lay-up on the mould is taken for the cure cycle. It is widely used in the aerospace industry to fabricate high strength/weight ratio parts from pre-impregnated high strength fibers for aircraft, spacecraft and missiles.

In the ***Mechanical Testing and Structural Health Monitoring Laboratory***, the mechanical properties of all kinds of materials are characterized and reported in accordance with international standards, accredited testing services and reports are provided, all total quality requirements are met and documented.

The ***Wet Chemistry Laboratory*** is equipped with several facilities for experiments ranging from the production of newly designed monomers and nanomaterials to polymer synthesis. The facilities in the lab bring innovative solutions.

The ***Polymer Processing Laboratory*** offers the development of thermoplastic polymer compound formulations, masterbatch preparation, and improved manufacturing processes.

The ***Material Characterization Laboratory*** covers the thermal, thermo-mechanical, rheological and structural characterization of all composite materials and individual components used in composite manufacturing.

The ***Additive Manufacturing Laboratory*** aims to develop novel Additive Manufacturing Technologies by improving and enhancing existing processes as well as developing new hybrid processes for manufacturing multifunctional complex parts. The lab focuses on metal, high-performance plastic, composite and hybrid additive manufacturing processes, especially for the jet engine industry.

The ***Flammability Testing Laboratory*** offers test capabilities according to aerospace and railway industry standards which require detailed and sensitive handling and execution of flammability tests

Dr. Emir Öngüner
Freelance Researcher in Aviation History

Australian Pilot Apologizes to Turkey: Sir Charles Kingsford Smith

Turkish-British Diplomacy before the MacRobertson Air Race (1934)

The 1930s stand out as a time period in which long-distance flights and record attempts took place as aviation became popular in international circles and attracted not only the military but also civilian interest as well. Turkey, geographically located on this route, has been a haunt for many foreign pilots and has often appeared in the press as a country selected to be a passage point on fight routes that set various new world records in aviaition.[1] According to procedure, the names of pilots who were scheduled to conduct transcontinental flights were given to countries whose airspace would be used through diplomatic channels, providing officials with the estimated time, and then the subsequent flight programs were prepared upon approval. There are some examples of pilots who, according to their flight plans, had passed through Turkish airspace in some cases, or they had landed at previously designated runways and then continued their flight after some rest and refueling.

Elly Beinhorn, who had broken the flight record of covering two continents with a route from Germany to Istanbul and turning back in a day on August 13, 1935, has been referred to as a British pilot who made an unauthorized landing, while sharing her impressions about Turkey, where she had been before, during her record attempts.[2] Passing through Turkish airspace, Jim Mollison landed in Konya without the permission of the Turkish authorities and was detained for five days in a hotel by Turkish security forces, according to Beinhorn's claims. Stating that Turkey took a firm stand against the fait accompli approaches, Beinhorn said that Mollison was deported by train.[3] The clue hinting that Mollison was not the only pilot to have made an unauthorized landing in Turkey is noticeable in a study that was completed regarding the MacRobertson Air Race between London and Melbourne conducted in 1934.[4] Australian pilot Sir Charles Kingsford Smith (***Figure 1***), who served as one of the signal corps during World War I in the 19th Battalion of ANZAC forces in the Çanakkale frontline, made an unauthorized landing in Turkey in 1931, and this incident appeared as an obstacle for him in attending the competition in 1934.

Figure 1: Australian Pilot Sir Charles Kingsford Smith (1897-1935)[6]

The Turkish press had reported on October 3, 1931 that an airplane flying from Australia to England landed in Milas, Muğla, and that the pilot was Charles Kingsford Smith.[5] It was stated in the article that the landing was due to sunstroke, and it was a health-related incident. (***Figure 2***).

[1] For a nonstop flight record from New York to Istanbul, pls see: Polando, J., Wings over Istanbul: The Life and Flights of a Pioneer Aviator, Peter E. Randall Publisher, Porthsmouth, NH, 2000, p. 41-61; For Flight Record from Germany to Asia within one day, pls see: Beinhorn, E., Alleinflug: Mein Leben, F.A. Herbig Verlagsbuchhandlung, 2007, München, pp. 212-221; Öngüner, E., Elly Beinhorn: Female Pilot Achieved Record Breaking Flight from Germany to Turkey, Aviation Turkey, Vol:1, Issue: 3, 2020, pp. 102-108

[2] Beinhorn, a.g.e., p. 82

[3] No information could be found on the fate of this airplane in Konya.

[4] Websdale-Morrisey, D., On a Wing and a Prayer: The Race that Stopped the World, Text Publishing Company, 2019, Melbourne, p. 35

[5] "Australian Pilot Lands in Milas", Cumhuriyet, 03.10.1931, p. 2

[6] Image Library of State Library of New South Wales, Sydney / Australia

Avusturalya'lı tavyareci Milâs'a indi

Milâs 2 (Hususi) — Buraya bir İngiliz tayyaresi indi. Tayyareci Avusturalya'dan geldiğini, güneş çarpmasından yere indiğini söylemiştir. Tayyareci henüz hareket etmemiştir.

CUMHURİYET — Bu tayyarecinin Avusturalya'dan İngiltere'ye gelmekte olan Kings Ford Smith olduğu anlaşılmaktadır.

Figure 2: Smith landed in Milas on October 2, 1931.

AIR REGULATIONS.

TROUBLE WITH TURKEY.

(Australian Press Association.)
LONDON, September 27.

It is worthy of comment that the only absentions from the International Air Traffic Association's conference, which is now sitting in London, are Turkey and Persia, whose regulations have caused most trouble to aviators.

Neither Mr. J. A. Mollison nor Sir Charles Kingsford Smith is applying to Turkey for a permit to traverse Turkish territory during their pending flights. The "Evening Standard" says both airmen previously were subjected to bother through unavoidable forced landings, for which they were forbidden to cross the Turkish frontier again.

Figure 3: Mollison and Smith are not authorized to fly over Turkish territory (29.09.1933)

VIVID MEMORIES

On his next hop, yesterday—from Brindisi to Bagdad—he made a slight detour southwards to avoid flying over Turkey. He probably had vivid memories of what happened to him in October, 1921, when he was forced down by illness at an obscure Turkish town called Milas, in Asia Minor, and was held by the Turks under armed guard for two days. This mishap dashed all "Smithy's" hopes of breaking the record from Australia to England.

So he avoided Asia Minor yesterday. He flew over Greece—possibly over ancient Athens—and then over the island of Rhodes, where once stood the famed Colossus. Next came the deserts of Syria and Iraq, where Assyrian villagers were massacred this year, and at last he landed at Bagdad, where the Iraqi are still in mourning for King Feisal.

Figure 4: Smith landed in Milas without authorization in October 1931 (06.10.1933)

Taking a look at Australia's local press in 1933 and 1934, there is interesting information about Smith's participation in the air race between England and Australia in 1934, and about the conflict between England and the Turkish authorities. It was stated in the International Air Transport Conference, that was held in London in 1933, that Turkey and Iran were the countries that were often laying obstacles on airspace use and it was mentioned that Smith and Mollison were prohibited to use Turkish airspace due to their unauthorized landings[7] (***Figure 3***). Smith had to make its flight out of Turkish airspace from London to Pakistan's Karachi in October 1933, due to the adverse case that had happened in 1931. He took off from Brindisi, Italy, the first destination in pursuit of London and headed to Baghdad nonstop, and took off from Baghdad on October 7, 1933 and flew directly to Karachi. In one of the newspaper reports on the related subject, it was stated that he was detained by Turkish security forces for two days due to the incident in 1931.[8] (***Figure 4***).

Before the MacRobertson Air Race planned to be held in October 1934, the list of the competitors were submitted to the countries that the pilots were to pass through, but Charles Kingsford Smith's name on the list led to tension between the Turkish and British governments. According to the news dated July 26, 1934, the Turkish government implied that Smith had humiliated them by using Turkish airspace without authorization and stated that he would not be he would not be given permission to pass through Turkish airspace if he joined in the upcoming race. The negotiations between the British Ministry of Aviation and the Turkish government were inconclusive. Smith, however, conveyed that he didn't have any intention to despise Turkey and that he could land in Istanbul during the race and meet with the Turkish government in person, if necessary[9] (***Figure 5***). In another news report dated August 9, 1934, the British, it was said that Australian and Turkish governments were conducting negotiations and if Mollison and Smith used the airspace without the authorization of Turkey, a diplomatic crisis would be likely to occur. It was also noted that there would be a possibility of applying legal sanctions on the two pilots. Turkey did not accept the inconsistent statements that the pilots had given to the press about the mistreatment after their unauthorized landing. It was signaled that if Turkey didn't relieve the sanctions imposed on these pilots, the British and Australian governments would prohibit Mollison's and Smith's use of Turkish airspace in order not ruin diplomatic relations[10] (***Figure 6***).

In the newspaper article dated August 15, 1934, it was stated that the Turkish Embassy in London didn't know about the sanctions imposed on the pilots[11] (***Figure 7***), and then it was seen as new information that came from the Turkish side 3 weeks later. An important statement made by Şükrü Koçak, Vice President of the Turkish Aviation Association (T.Ta.C. - Türk Tayyare Cemiyeti) was disclosed to the press on September 7, 1934. Koçak stated that if the pilots apply via the Turkish

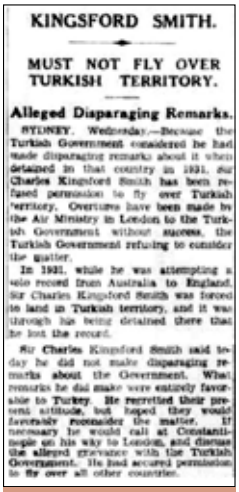
[7] "Air Regulations", The Courier Mail, 29.09.1933, p. 14

[8] "Crosses Six Countries in Two Days", The News, 06.10.1933, p. 1. Only the relevant part of the news is shown in the figure.

[9] "Kingsford Smith Must Not Fly Over Turkish Territory", The Age, 26.07.1934, p. 12. Only the relevant part of the news is shown in the figure.

[10] "Air Race Ban: 'Smithy'-Mollison?", The Telegraph, 09.08.1934, p. 9. It is not the original page layout of the newspaper. The news columns are rearranged side by side by the author.

[11] "Centenary Air Race: Landing In Turkey", The Inverell Times, 15.08.1934, p. 1



KINGSFORD SMITH.

MUST NOT FLY OVER TURKISH TERRITORY.

Alleged Disparaging Remarks.

SYDNEY, Wednesday.—Because the Turkish Government considered he had made disparaging remarks about it when detained in that country in 1931, Sir Charles Kingsford Smith has been refused permission to fly over Turkish territory. Overtures have been made by the Air Ministry in London to the Turkish Government without success, the Turkish Government refusing to consider the matter.

In 1931, while he was attempting a solo record from Australia to England, Sir Charles Kingsford Smith was forced to land in Turkish territory, and it was through his being detained there that he lost the record.

Sir Charles Kingsford Smith said today he did not make disparaging remarks about the Government. What remarks he did make were entirely favorable to Turkey. He recretted their present attitude, but hoped they would favorably reconsider the matter. If necessary he would call at Constantinople on his way to London, and discuss the alleged grievance with the Turkish Government. He had secured permission to fly over all other countries.

Figure 5: Turkish government's objection of Smith's authorization (26.07.1934)

Air Race Ban: 'Smithy'—Mollison?

MUST NOT CROSS TURKEY

FEVERISH PARLEYS ARE NOW IN PROGRESS

MELBOURNE, Wednesday.—Turkey will not allow Sir Charles Kingsford Smith and James Mollison to cross its territory for the Centenary air race.

Negotiations are in progress between the British, Australian, and Turkish Governments over permits, and the matter is assuming international significance.

If "Smithy" and Mollison attempt to fly across Turkey without permits, diplomatic relations with England will suffer, and a ban probably will be placed on all permits for British fliers.

Turkish Coast

In addition, the Turks may intercept the two fliers and bring them to trial before a Turkish court.

The ban on Mollison and "Smithy" is because both men, while previously flying across Turkey without permits, made forced landings there.

According to the Turks, they later made complimentary statements to the press about their treatment by the Turks.

The Turkish Government has just informed the British Air Ministry that all British airmen in the air race, with the exception of "Smithy" and Mollison, may pass across its territory unchallenged.

But it demands that "Smithy" and Mollison be excluded.

Britain's Veto?

If Turkey does not lift the ban on the two fliers it is possible that the British and Australian Governments may prohibit "Smithy" and Mollison from attempting to cross Turkey rather than endanger diplomatic relations.

For the two fliers to avoid Turkey would mean a considerable detour from the direct route between London and Bagdad.

This is the first control point where planes must land and check in after leaving London.

The detour would seriously handicap their chances.

PLEA TO BRITAIN

CANBERRA, Wednesday.—Representations have been made to the British Government by the Defence authorities to clear up the Charles Kingsford Smith's difficulty. The Commonwealth authorities, with whom Sir Charles is in communication, are still awaiting a reply.

Figure 6: Diplomatic contacts between Britain and Turkey because of the Smith incident (09.08.1934)

Embassy, the necessary authorization would be given to them by the Turkish government[12] (***Figure 8***). It is also noteworthy that the Turkish government showed the Vice President of the Turkish Aviation Association as an addressee to the British and Australian governments within diplomatic contacts.

Two important news reports were noticeable on September 21, 1934. The pilots that had considered the call of th VP of the T.Ta.C, contacted with the British Embassy in Ankara, Turkey[13] (***Figure 9***). On the other hand, the same day another newspaper[14] (***Figure 10***) reported that Charles Kingsford Smith apologized to Gazi Mustafa Kemal Atatürk, President of the Republic of Turkey via a telegram as follows:

"I most respectfully request permission to fly over your territory during the air race. I am unaware of the reasons for the present ban, but sincerely apologize if I have given unwilling offence."

In the news the next day, it was stated that Turkey would give authorization to Smith after his official apology to Atatürk, but the same would not be applicable to Mollison[15] (***Figure 11***). An important statement made by Australian Deputy Defense Minister Sir Josiah Francis clarified the issue. Francis stated that according to the news they received from London, the Turkish government would grant the necessary authorization and Smith should go to Ankara during the race to apologize to the Turkish authorities in person[16] (***Figure 12***). According to a report dated September 28, 1934, Mustafa Kemal Atatürk had wished to meet with Smith after his landing in Ankara[17] (***Figure 13***). According to Another report dated September 30, 1934, states that it was stated that Smith's visit to Ankara was not confirmed because the British Ambassador's official application had not been responded to by Turkey yet. If the final decision would have been negative, Smith should then have set a route out of Turkish airspace to go to Britain during the race.[18] (***Figure 14***).

While the above-mentioned diplomatic contacts between Turkey and Britain and Australia were being held, Smith was trying to get his airplane ready in terms of technical and certification requirements prior to the race. However on October 3, 1934, the Australian press reported that Smith had withdrawn from the MacRobertson Air Race due to technical problems. In the related news, there was no information contained about the problems encountered between the countries and it was reported that the decision was only due to technical reasons[19] (***Figure 15***). It is also possible that Smith's withdrawal from the race was because of the alleged technical problems, since no news from the Turkish authorities was found in the Australian newspapers later and because Smith's plan to visit Ankara and to officially apologize to Atatürk was not confirmed.

Smith's flight, which he had started in pursuit of a new record on November 6, 1935 ended in the Andaman Sea of the Indian Ocean, and the dead body of Smith and his co-pilot were never found. After his death, his memoires were compiled and published and this book provides crucial information about Smith's

Centenary Air Race

LANDING IN TURKEY

Prohibition Denied

LONDON, Tuesday.

The Turkish Embassy in London has stated that he has no knowledge of the reported refusal of the authorities to allow Sir Charles Kingsford Smith and the Mollisons to fly over Turkish territory during the air race.

Figure 7: The statement of the Turkish Embassy in London (15.08.1934)

FLYING OVER TURKEY.

CONSTANTINOPLE, Thursday.—

Shukri Bey, vice-president of the Aeronautical League, states that if Kingsford Smith and the Mollisons apply through their Embassy, the Turkish Government is certain to give them permission to fly over Turkey in the Centenary air race.

Figure 8: The statement of Turkish Aviation Association (T.Ta.C.) Vice President Şükrü Koçak (07.09.1934)

FLIGHT OVER TURKEY

LONDON, Sept. 20.

The "Daily Telegraph," referring to Sir Charles Kingsford Smith's and Mr. and Mrs. J. A. Mollison's difficulty in obtaining permits to fly over Turkey in the Centenary air race, says that an informal move has been made through the British Embassy at Angora, aiming at reconsideration by the Turkish Government of its attitude.

Figure 9: The attempts of the pilots at the Turkish Embassy in London for contacting the Turkish government (21.09.1934)

[12] "Flying Over Turkey", The Kyogle Examiner, 07.09.1934, p. 4

[13] "Flight Over Turkey", The Maitland Daily Mercury, 21.09.1934, p. 10

[14] "Sincerely Apologise: Kingsford Smith's Cable to Turkey", The Telegraph, 21.09.1934, p. 1

[15] "Permit from Turkey", The Newcastle Sun, 22.09.1934, p. 1

[16] "Flight Over Turkey", The Sun, 27.09.1934, p. 19

[17] "Kemal Pasha Wants to See Smithy", The Newcastle Sun, 28.09.1934, p. 8

[18] "Will Smithy Go to Ankara?", The Sunday Mail, 30.09.1934, p. 1

[19] "Smithy Out of the Air Race", The Herald, 03.10.1934, p. 1

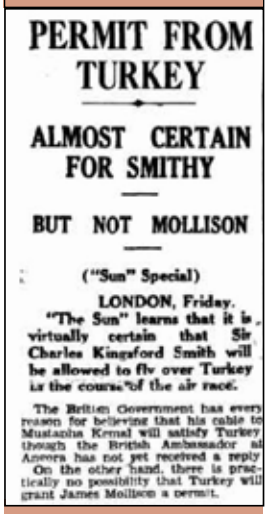
"SINCERELY APOLOGISE"

Kingsford Smith's Cable to Turkey

SYDNEY, September 21.

In a final effort to secure permission to fly over Turkish territory in the England to Australia air race, Sir Charles Kingsford Smith to-day cabled the President of Turkey Mustapha Kemal Pasha) as follows: "I most respectfully request permission to fly over your territory during the air race. I am unaware of the reasons for the present ban, but sincerely apologise if I have given unwitting offence."

Figure 10:The apology of Smith to Atatürk, President of the Republic of Turkey (21.09.1934)



PERMIT FROM TURKEY

ALMOST CERTAIN FOR SMITHY

BUT NOT MOLLISON

("Sun" Special)

LONDON, Friday.

"The Sun" learns that it is virtually certain that Sir Charles Kingsford Smith will be allowed to fly over Turkey in the course of the air race.

The British Government has every reason for believing that his cable to Mustapha Kemal will satisfy Turkey though the British Ambassador at Angora has not yet received a reply. On the other hand, there is practically no possibility that Turkey will grant James Mollison a permit.

Status of flight introduced by Turkish government (22.09.1934)

aviation career[20] (***Figure 16***). The pages regarding the preparation of the MacRobertson Air Race do not refer to the problems he had encountered with the Turkish government, while the negative comments made about him after his withdrawal from the race are included. Smith noted in his memoires that he was accused of staying away from competing against other pilots, losing confidence in himself and his airplane, and of participating only in races that he was sure he could win, and he closed the related chapter with this noteworthy sentence:[21] "A nation's hero may often become a nation's whipping boy overnight."

In Smith's documented memoires, it is possible to find detailed information about his unauthorized landing in Milas in 1931, which was the cause of the problem with the Turkish government. Having encountered many difficulties throughout the 9-day Australia-Britain race with the British pilot Jim Mollison, Smith explicitly mentioned that the Turkish authorities were kind to him during the Milas incident and that he was cared for during his sickness[22]

Taking a glance at the relevant part of his memories, it can be seen that Smith searched for an appropriate place to land, in the skies of Antalya Bay when he was about to faint while he was heading to Athens after taking off from Aleppo, the point on the race route. After being in the air for a while feeling dizziness and nausea, he was able to land at in open terrain near Milas, and one of the wheels of the plane was damaged during landing. After getting off the plane, people in the vicinity came there with curiosity. He tried to communicate with hand gestures and asked one of them to bring him brandy by pressing money into his hand. Smith said that he suddenly fainted and after coming to himself, he saw that there was a very large group of people around him and his plane, including soldiers. As he was heading towards the cockpit, one of the soldiers held Smith's arm, nodded his head negatively and showed his gun. At that moment Smith realized that he was arrested. 3-4 hours later, a Turkish officer and several mounted troops arrived at the scene. The officer understood a little English and was fluent in French. After a while, a Major came to the scene in a Ford automobile. When he told the Major he wanted to repair his plane and fly to Athens, the answer given to him was as follows: "You must first go to Milas and see the Commandant and be interrogated as to the reason for your presense here."

Whilst all this was going on, Smith also began to worry about the loss of time in the race with the British pilot Jim Mollison. He was taken to the car upon the order of the Major and brought to the headquarters 15 kilometers away. During the questioning, he was asked several questions

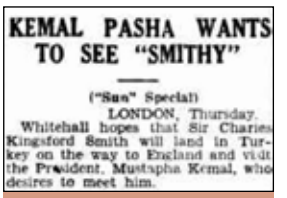
FLIGHT OVER TURKEY

MELBOURNE, Thursday.

Before Sir Charles Kingsford-Smith can fly over Turkey in the Air Race he must visit Angora and make his apologies to the Turkish authorities, the Assistant-Minister for Defence (Mr. Francis) said to-day. Every effort was being made by the Commonwealth Government to ensure that he would take part in the Air Race.

"We have received a cable from London that the Turkish Government has given, or will give, permission for Sir Charles to visit Angora to make his apologies, and asking whether he might be expected. Sir Charles has now given details of his proposed flight, and the necessary steps are being taken to advise the countries concerned," added Mr. Francis.

Figure 12: The statement of Australian Deputy Defense Minister Sir Josiah Francis (27.09.1934)



KEMAL PASHA WANTS TO SEE "SMITHY"

("Sun" Special)

LONDON, Thursday.

Whitehall hopes that Sir Charles Kingsford Smith will land in Turkey on the way to England and visit the President, Mustapha Kemal, who desires to meet him.

Figure 13: Atatürk's wish to meet Smith (28.09.1934)

WILL "SMITHY" GO TO ANGORA?

Make Peace With Turkey

LONDON, September 28.

As a result of inquiries by the Sunday Mail at Constantinople, it is not possible to ascertain whether Sir Charles Kingsford Smith is expected to come to Angora to make his peace with the Turkish authorities, because no reply has been received to the British Ambassador's formal request to permit him to do so.

Permission to fly over Turkey to Australia apparently was granted as the result of Sir Charles Kingsford Smith's telegrams to Kemal, but it does not follow that he will be allowed to fly over Turkey on any other occasion.

It is suggested that pending the Ambassador receiving a reply, which will be communicated to the Air Ministry, Sir Charles should not seek permission to fly via Turkey from Australia in order to compete in the air race. Failing a reply, the opinion is expressed that he should fly to England by another route than Turkey.

A possible visit of Smith to Ankara (30.09.1934)

like "Why did you land here? Why were you sick? Why did you not land somewhere else? Who are you? What do you want?" Stating that he gave short and clear answers to all

[20] Kingsford Smith, Ch., My Flying Life: An authentic biography prepared under the personal supervision of and from the diaries and papers of the late Sir Charles Kingsford Smith, Andrew Melrose Ltd., 1937, London

[21] ibid, p.249

[22] ibid, pp.214-218

Figure 15: Smith's withdrawal from the air race due to technical problems (03.10.1934)

the questions, Smith was unable to be freed. The matter was said to be forwarded to Ankara, and Smith later requested to send a telegram to Ankara on his behalf to be sent to Athens. The request to inform the representatives of the Vacuum Oil Company waiting for him in Athens about his status in the race was accepted. He was put in a room with a comfortable bed to spend the night and he was also given food. Stating that the Commander in Milas was very kind to him and that the plane was also secured, Smith stated in his memoires that a military doctor took care of him and gave him medicine.

A soldier arriving early the next day woke up Smith and informed him that the Commander would come to meet him. Smith thought that he could reach London on time if he could take off in a little while. After waiting for 3 hours, the Commander came with another officer for additional questioning. After the questioning, he was told that they were expecting approval from Ankara for the release. Smith stated that he had been told by the Commander in Milas that he would release him if he had the authority, and that he had to explain his rank to the Turkish officers as the Brigadier General to set him free during the process.[23] Later, Lieutenant Irfan, with whom Smith was able to easily communicate in French, was appointed as a companion for him. Smith was then allowed to meet with British and American tobacco merchants, Abrahams and Cockerim, and rest at the residence of these two businessmen, under the supervision of Lieutenant Irfan.

As the time went by, Smith was losing his chance and enthusiasm for breaking the race record. In order to beat Mollison, he must have had already reached London in the afternoon of that day; however, given the current situation, he fully lost his chance to become a winner in the race. On the other hand, on his last night in Milas, he was very glad for the hospitality shown to him. He was allowed to go to the nearest airport to repair his plane the next day. When Smith returned to Milas at noon, he was informed that the necessary permit was given to depart. After a short lunch, he said goodbye to those who hosted him and to Lieutenant Irfan, who he had described as "very respectful" in his memoires, and then he left for Athens.

It is noteworthy that Smith, while writing about the Milas incident in 1931, did not use any negative words about Turkey and the Turkish authorities. However, since his memoires were compiled by other individuals after Smith's death, there is a possibility for a slight alteration in Smith's account of his reasons for the problems faced in Turkey during his participation in a worldwide known air race in 1934. According to overall documentation Smith expressed that he was treated well and the Turkish side implemented necessary procedures, as required for the circumstances. Considering the inconsistent statement alleged to have been given by Mollison and Smith to the press regarding the period of detention in Turkey, in the Australian newspaper The Telegraph dated August 9, 1934, the facts were proven by Smith in his memoires as stated above. Holding several records in aviation, Smith's effort to make up for his unintentional mistake by apologizing to Atatürk prior to the race in 1934 also reveals his character and respect for the Republic of Turkey

Figure 16: The book compiled from the memories of Smith after his death: My Flying Life (1937

[23]This honorary rank was granted to him due to his achievements in civil aviation. His military rank was captain.

SCIENCE TALKS @TMMB#1

Prof. Dr. Banu Onaral
Drexel University

Sanayi Neferi Nuri Demirağ'ın Ekonomik Kalkınma Uzgörüsü

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1991

by Sıtkı Atasoy
Spotter & Author of
Aviation Turkey

SHOOTING TIPS AND TECHNIQUES IN AVIATION PHOTOGRAPHY

In our previous article, we dipped into the equipment used in Aviation Photography and shared information on their specific capacities. In this article, we will review and take a focused look into the techniques that we use in aviation photography.

As we mentioned in our previous article, it is useful to touch upon one point again before moving onto the equipment selection. It is rational to make choices in the selection of equipment as per our budget. So, we think it is helpful to select or upgrade equipment by firstly appraising the enthusiasm within us, recognizing our talents as well as our future-plans for this hobby. It should be kept in mind that the photo is taken by the person. As our number of shots increases and we evaluate our results, we will be able to see our needs more easily and make more sensible choices.

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Shooting Fixed Air Vehicles:

For static aircraft shooting, we usually prefer a wide-angle lens as we want to photograph the entire aircraft. Using a wide-angle lens also offers us the opportunity for close-up shots as well. The use of a wide-angle lens can make the air vehicle more imposing, but you can also lose details. The direction of light as it appears relative to the camera position is of fundamental importance in all areas of photography. To capture a stunning photo, we need to be sure to place the sun at our back, behind us. Unlike in other areas of photography, when adjusting the angle of the sun, the light reflections coming off a wide metal surface like the cockpit and the body of the aircraft can cause light flare. Keeping this angle aspect in mind, another point to mention here is that it would be useful to try to hide objects such as buildings, equipment, a pole and etc. behind the body of the aircraft. A different angle can be selected in order to hide certain objects that we do not want to have in our composition. Generally, it is necessary to use aperture priority mode during daytime and shutter priority mode during nighttime. We use the aperture priority mode to get a depth of field and to achieve more sharpness. We can change the aperture according to the focal point in our composition. In addition, if we want to focus detail on part of the aircraft, like the engine, wing, tail, landing gear, cockpit, etc., a telephoto lens is preferred instead of a wide-angle lens. If we want to take a detailed photo of the entire aircraft, it will be appropriate to choose a telephoto lens if our distance is suitable.

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Shooting Moving Air Vehicles from the Ground

In order to shoot moving aircraft during landing and take-off, we need to use telephoto lenses since we are far from the object for safety reasons. If the objects in the background of the aircraft that we are shooting need to be detailed according to our composition, it is recommended to select aperture priority shooting. Our lenses must have a vibration reduction feature and must be turned on. However, it is necessary to shoot with the PAN technique, which is also used in other areas of photography, in cases where the background creates image pollution and we want to place a greater emphasis on the object of the photo, not the background. In PAN shooting, it is necessary to use a shutter priority mode. An important area of attention at this point is that our focus must be set at long distance and thus we can avoid vibration. Even the slightest camera shake prevents us from capturing clear images at a long distance. Holding our breath while shooting is also among the measures we can take. By determining the speed of the object in PAN shots, keeping the aircraft in the focus of our lens while shooting, and by moving our camera stably in the direction of the vector movement of the aircraft are the key factors that help us create clear images. This synchronization can only be possible with a high number of shots and experience. At this point, hand-eye coordination is incredibly important. Where necessary, using a tripod allows us to eliminate this disadvantage. In addition, using the "continuous focus" feature, which can be found in different names on most cameras, ensures the clarity of the image. Again, in these kinds of shots, the evening golden hour is very important, and due to the exhaust gas of the aircraft, our distance to the object of focus, the heat of the runway, the heat haze caused by the water vapor in the air, the resulting images may suffer from blurring, especially during the summer months.

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Shooting Propeller Airplanes from the Ground

Static shots of propeller airplanes can also be taken in accordance with the methods applicable for static aircraft. The main issue here is being able to capture images of a propeller airplane while it is running, in motion and flying. In these shots, shutter priority mode should be used, because dynamism is achieved by reflecting the rotation of the propellers and rotary wings in your shots. For this, you need to shoot in slower shutter speeds and as with the PAN technique, you need to shoot by moving your camera stably in the direction of the vector movement of the aircraft, by holding your breath. Where necessary, using a tripod allows you to eliminate the disadvantage of camera shaking. In daytime shooting of propeller aircraft with slower shutter speeds, various filters are recommended, especially in times other than golden hours, since the sun is higher, and the sunlight is sharp.

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Air-to-Air Shooting of Air Vehicles

Choosing the right lens (such as 24-70mm, 24-105mm, or 70-200mm) based on the minimum safe distance between the two aircraft in line with flight rules and using a single lens during shooting will provide you with mobility and convenience. Your aircraft preferences will determine your limits during shooting. Aperture priority mode helps us capture better images while shooting a jet powered aircraft if the background is the ground, or if we want a regional icon in the background to be sharp and clear. For propeller aircraft , using shutter priority mode helps to capture stunning images. As you move with the aircraft that you are shooting, your chances of capturing clear shots, in shutter priority mode without a tripod, will be much higher than by shooting from the ground.

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Nighttime Shooting of Air Vehicles from the Ground

In night shots, the performance of your tripods and equipment comes to the fore and will support you. Use of a sturdy tripod enables you to achieve clear night shots.

For nighttime shooting of a fixed aircraft in the parked position, slow shutter speed and long exposure should be used due to the lack of light, the diaphragm (aperture) should be kept at the minimum setting (the smallest opening) when taking pictures for sharpness and clarity, ISO setting should be at the lowest values, manual focus is recommended instead of autofocus, if possible, and the photograph should be captured by activating the shot timer.

The night shooting of moving aircraft should be done with a fast shutter speed, at maximum aperture setting, high ISO values, "Continuous autofocus" feature, and by turning off the vibration reduction feature of your lens. Using the same settings, we must shoot by moving our camera stably in the direction of the movement of the aircraft while maintaining focus on the aircraft.

As the number of your night shots increase, better results can be achieved by selecting the most suitable values and determining adjustments for parameters such as shutter speed, aperture and ISO.

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Ground-to-Air Shooting of Air Vehicles

In ground-to-air shooting of an aircraft, there is usually sky in the background. Due to our distance from the object, telephoto lenses should be used. Prime lenses can also be used since they have higher focusing speeds. In these shots, it is necessary to use shutter priority mode, considering the light. When we shoot in shutter priority mode, we can have the opportunity to shoot the aircraft as if it is stationary and as if we have stopped time. Depending on the light level and the speed of the aircraft, we need to adjust our shutter speed to a high or medium level. After a few shots, we can attain the appropriate adjustment.

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Timing

Under this topic, I will try to explain the "light" parameter, while applying the tips and techniques I have described above. Since we do not shoot in the studio, our most important light source is the sun. For this reason, we can only adjust the direction, the angle and the amount of light according to the position of the sun, i.e. timing. This timing allows us to capture clearer, sharper, more vivid images. Shooting especially at sunrise and sunset, which we call the golden hour, can produce better results. If we want to achieve an opposite angle capture, it will be more convenient at this point to make use of the golden hour. If we want to achieve cold colors as per our composition, the appropriate timing can be just before sunrise and just after sunset, which we call the blue hour. Some aviation photographers may prefer various filters to soften right-angle midday light.

In this article, I touched upon shooting tips and techniques. However, the techniques and parameters given above indicate my personal experience, preferences and recommendations. We can see that every aviation photographer captures amazing images with the harmonization of their creativity, know-how and experience. With a careful review of our photos we can see the results of the techniques used, and we see our own performance and make the necessary changes. As our number of shots and experience increase, we can achieve optimum adaptation by manually selecting our parameters according to time and conditions.

In our next issue, I will explain the necessary preparations required before, during and after "Spotting Day", including the safety precautions and what should be considered when applying shooting techniques during this type of activity/event

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Assist. Prof. Dr. Tamer Saraçyakupoğlu
Mechanical Engineer

Manufacturing Methodology of an Aviation-Grade Part: Part 21 Certification

Although there have been economic recessions, growth in the aviation industry steadily continuous. Even during Covid days. On April 17th 2020 The International Air Transport Association (IATA) released a report regarding air travel expectation which is shown in Figure 1. Hopefully air traffic will increase through Q3 and Q4 2020.

As we look at the manufacturing side of the aviation industry, it is worth emphasizing that yearly based aircraft manufacturing also increases. The main players such as Boeing, Airbus, Embraer, Bombardier, Comac, ATR, etc. share the commercial aircraft manufacturing market. Amongst those manufacturers, as it is shown in Figure 2, Boeing and Airbus have 81% of all commercial aircraft which have been manufactured from 2008-2018 according to IATA reports (IATA, 2019). The remain, 19% is shared by the others.

The aviation industry will execute on strategies to recover as quickly as possible. During the recovery phase, there will be many applications based on manufacturing technologies. More likely, new sterilization mechanisms will be implemented inside the cabin, cockpit and cargo bay and disinfection systems will be added to the environmental control system (ECS). In order to ensure successful implementation of new systems, design assurance flow should be followed. In the aviation industry, it is known that the manufacturing ofaviation-grade parts is clearly defined. The components of the system and the relation between steps are provided in Figure 3 as a flow chart.

The companies which have manufacturing capability of airworthy parts/components should have Design Organization Approval (DOA – Part J) and Product Organization Approval (POA – Part 21 G) from the relevant airworthiness authorities. To ensure customer satisfaction, the aircraft design organization should establish its own quality management system to demonstrate that their capabilities to manufacture, and to continually progress, with safe, reliable products that meet customer requirements. It is typically referred to as a design assurance system.

Needless to say, the process in obtaining those privileges from the authorities is a long and winding road. POA which is referred to as Part 21 process is divided into two, depending on its functionality. Mainly these privileges are due to being located in a niche league as well as having manufacturing capability of the parts which have a value that are 60 times higher compared with the automotive industry. According to the National Academies Press (NAP) report, the finished value of a vehicle per pound is only about $5, however, the finished value per pound for a commercial transport aircraft is $300. This equates to the price of aviation-grade parts as 60 times higher than those in the automotive

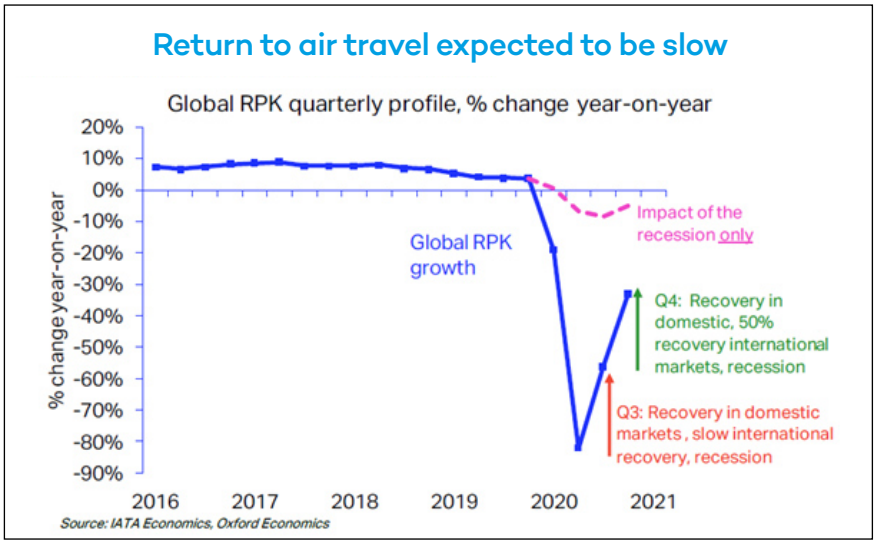


Figure 1. Air Travel Expectation in 2020 and 2021 (IATA, 2020)

industry. On the other hand with the implementation of novel technologies in mass-production lines in the aviation industry, companies are producing more aircraft comparatively than previous capacities would allow, in the same facility. For example, Boeing has declared that in their Renton facility the manufacturing capacity has been increased from 52 to 57 through 2019 (Zang, 2019).

It is obvious that aviation-grade materials are highly engineered and comparatively expensive, and saving aviation-grade material is of vital importance. With this in mind, what should be done in the manufacturing of these high-tech parts, what are the dos and don'ts during the certification process that is executed by the airworthiness authority.

The FAA and the EASA's Part 21 certification processes are similar to each other but, based on their specifications there is also a gap between them. In the table given below the comparison is provided between the two authorities.

In conclusion, if a company wants to manufacture an airworthy part, the proper method is to secure Part 21 certification. The Part 21 G-J certificate brings its own privileges along with it

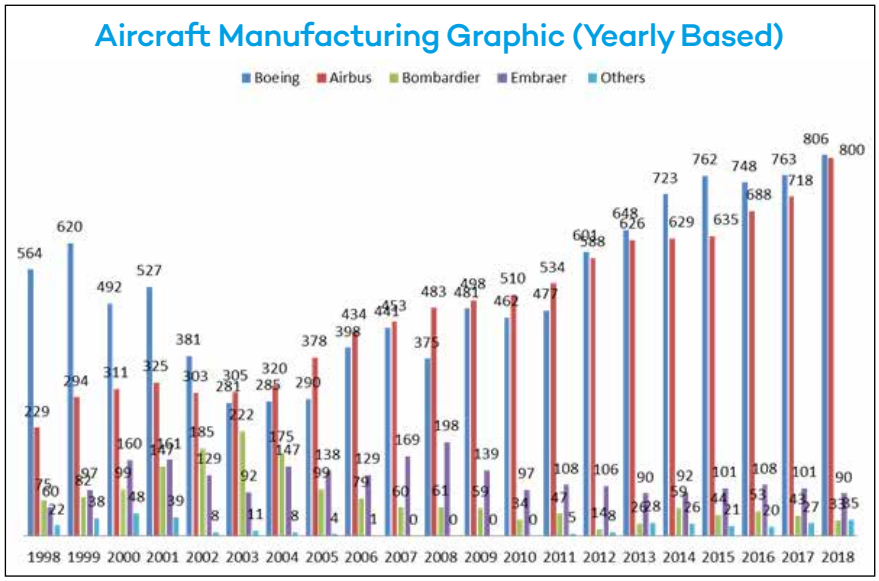


Figure 2. Aircraft Manufacturing Graphic (Yearly Based) (IATA, 2019)

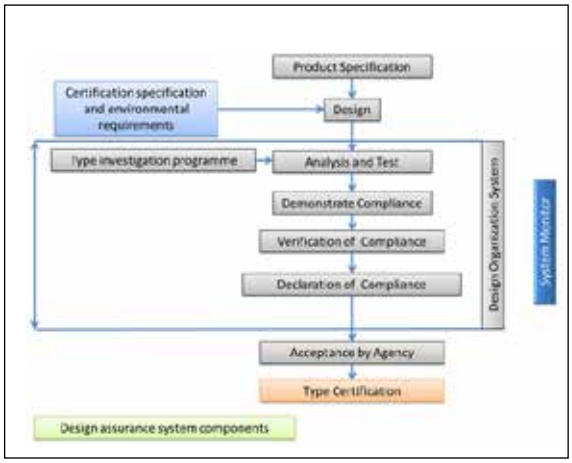
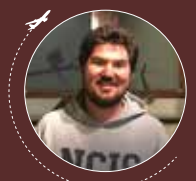


Figure 3. Relationship between design, design Assurance, and Type Investigation (Florio, 2016)

Subparts 21	EASA	FAA
A	General Provisions	General
B	Type-certificates	Type-certificates
C	-	Provisional Type-certificates
D	Changes to Type-certificates	Changes to Type-certificates
E	Supplemental Type-certificate	Supplemental Type-certificates
F	Production Under Type certificate Only	Production Under Type Certificate Only
G	Production Certificates	Production Certificates
H	Airworthiness Certificates	Airworthiness Certificates
I	Noise Protection Certificates	Provisional Airworthiness Certificates
J	Design Organization Approval	Delegation Option Authorization Procedures
K	Materials, Parts, Processes, Appliances	Approval of Materials, Parts, Processes, and Appliances
L	-	Export Airworthiness Approvals
M	Repairs	Designated Alteration Station Authorization Procedures
N	-	Approval of Engines, Propellers, Materials, Parts, and Appliances: Import
O	ETSO Approval	Technical Standard Order Authorizations
Q	Labelling products, materials and parts	-

Table 1. Comparing EASA and FAA Subparts of Part 21

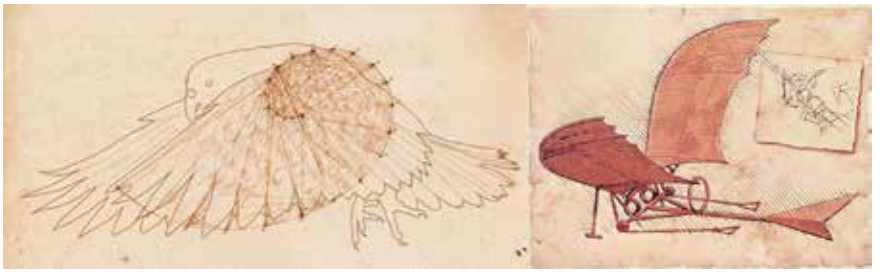
The Effects of Avian Bio-inspiration on the Birth of Flight



Göksel Keskin
Junior Researcher, Department of Biological Physics, Eötvös Lorand University / Glider Pilot

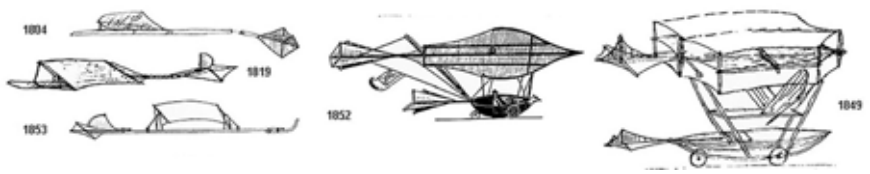
Aviation history is based on quite primitive aircraft. Until the first powered flight, humankind experimented with many different variants of unpowered flight ranging from kites to gliders. We can see that early aviation pioneers were clearly inspired by the grace of avian soaring high above in the heavens. Even today as we look skyward, we observe birds naturally demonstrating their avian precision as they effortlessly navigate swirling wind currents.

Exactly "how birds evolved to fly" and "how the first aircraft designs evolved to fly" follow the same type of narrative. Some scientists support the arboreal hypothesis and suggest that the ancestors of Archaeopteryx (first record of a flying dinosaur) lived in trees and glided into flapping flight but it's argued that the claws of Archaeopteryx were not suited for climbing. Other researchers support the cursorial hypothesis and suggest that these ancestors used their long, powerful legs to run fast with their arms outstretched, and were at some point lifted-up by air currents and carried into flapping flight. Also, before powered flight some inventors made flapping air vehicles and fixed wing gliders too. In these trials, the glider became the most successful model throughout aviation history thereafter.



Inventors such as Abbas ibn Firnas, Hezarfen Ahmed Çelebi etc. tried to fly with human-made bird wings, a concept that Leonardo da Vinci played an important part in developing. In da Vinci's time, there were no clear distinctions between occupational groups, and he was a biologist as much as an engineer. He is famous for his drawings and ability to visualize a landing pigeon without having had slow motion cameras to demonstrate his observation skills. It's known that he could distinguish different bird species and knew the details of each. In the Codex on the Flight of Birds, da Vinci discusses the crucial concept of the relationship between the center of gravity and the center of lifting pressure on a bird's wings. With the knowledge he acquired he created more than 500 sketches which include ornithopter, glider, and aerial screw designs. His designs are a splendid combination of zoology, botany, mathematics, physics and engineering.

After da Vinci, Sir George Cayley is sometimes called the 'Father of Aviation'. A pioneer in his field, he is credited with the first major break-through in heavier-than-air flight. Cayley was the first to understand and explain in engineering terms the concepts of lift and thrust. He realized that the propulsion system should generate thrust but that the wings should be shaped to create lift. He observed that birds soared long distances by simply twisting their arched wing surfaces and deduced that fixed-wing machines would fly if the wings were cambered. In addition, one of his most important discoveries was the power difference he found as a result of comparing the muscles of humans and birds. While 2/3 of the strength in all muscles is in the pectoral muscles (breast muscle) of a bird, in a man the muscles available for flying, would not exceed one-tenth of his total strength. That was the point where he understood the ornithopter is useless for human-powered flight. Then, he resolved to design a fixed wing aircraft and improved a glider which he

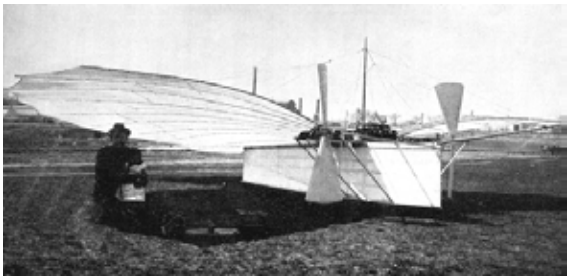


flew around 900 feet before it crashed in 1853.

German aviation pioneer Otto Lilienthal had read about Sir George Cayley's work and spent many years studying the flight and glide of birds. Also, he published a book called "Der Vogelflug als Grundlage der Fliegekunst - Birdflight as the basis of aviation" and a series of articles. Lilienthal designed and built gliders based upon the information that he had gathered. He made about 2,000 flights in at least 16 distinct glider types which resembled modern hang gliders. Lilienthal crashed in his glider and broke his back on August 9th 1896 and died the next day. With his findings, successful flights and Sir George Cayley's works would inspire the achievements of Wright Brothers and future success in powered flight.

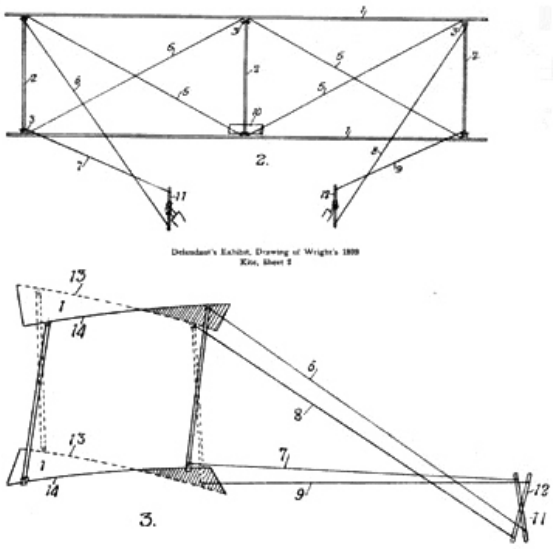
Gustave Whitehead had been Lilienthal's assistant before Lilienthal started glider flights, but Whitehead had never been part of the flight trials. He went to Brazil as a sailor then moved to the USA in 1893. He pursued his dream of flight and he had great knowledge of birds from his childhood. He first constructed Lilienthal's type of gliders and then worked on powered aircraft. In his flight experiments, he simply shifted his weight to one side more than the other to control the aircraft, as he had noticed that birds make use of this technique when he was studying birds in flight. Stanley Yale Beach's report referred to powered flights in 1901 by Whitehead, and included were these phrases:

'Whitehead in 1901 and the Wright brothers in 1903 have already flown for short distances with motor-powered aeroplanes,' 'Whitehead's former bat-like machine with which he made a number of flights in 1901,' 'A single blurred photograph of a large bird-like machine constructed by Whitehead in 1901 was the only photo of a motor-driven aeroplane in flight.'



After a short time, the Wright brothers first conducted literature research to find out the state of aeronautical knowledge at their time. They read about the works of Sir George Cayley and the hang-gliding flights of Otto Lilienthal. The Wright brothers spent a lot of time observing birds in flight. They realized that birds soared into the wind and that the air flowing over the curved surface of their wings created lift. Birds change the shape of their wings to turn and manoeuvre. Wilbur Wright noticed that a buzzard maintained its "balance in the air chiefly by twisting its dropped wing. This twist increased the air pressure on the dropped wing and restored the bird to level flight." They believed that they could use this technique to ensure roll control by warping or by changing the shape of the wing.

In summary, all the inventors who put effort into the invention of powered, heavier-than-air manned flight, are people who have worked on observing birds and had become experts in bird flight. Could we have ever reached the level in aviation that we have reached now without the reference and observation of birds and flying mammals, these magnificent creatures of flight that have emerged as a result of billions of years of evolution?



Electrofluidsystems Reveals Their Vision for Futuristic Hyperfast Flying Wing Package Drones and Air Taxis

Berkant Göksel

Electrofluidsystems presents their vision for futuristic hyperfast flying wing package drones and air taxis with hydrogen (H_2) fuel cells, plasma flow control and bionic Stingray geometry. The idea for a Stingray-shaped electric vertical take-off and landing (eVTOL) flying wing arose last summer and was convincing enough to get the company an invitation as one of 200 startups worldwide to take part at the Teknofest - Takeoff International Startup Summit held September 16 - 19, 2019 at Atatürk Airport Istanbul. At that time the project was still in the very early stages and thus not selected for support in Turkey. Electrofluidsystems now reveals the first details of the more advanced concept which has great potential for a series of new UAV systems (UAS) with the first product on target to enter the market in end of 2021.

Electrofluidsystems originally planned to reveal the first details and eVTOL prototypes with a 1.11 m span width at the UAS Innovation Hub at the Berlin Air Show ILA 2020. However the event was cancelled because of the threat of the novel coronavirus. The new management team of Electrofluidsystems was announced in January 2020: Berkant Göksel, Ahmet Bozkurt and Celal Derinkök are co-founders and managing partners.

The near-term vision for 2021 - 2022 is to have two mini UAS products with a 1.11 m wingspan: 1. PlasmaFalcon 1.11 with 6 - 11 kg maximum take-off weight (MTOW) and 2. PlasmaRay 1.11 with 11 - 18 kg MTOW. There are two types: H_2PlasmaRay uses a hydrogen (H_2) fuel cell module to demonstrate the technology as a proof of concept, whereby PlasmaRay uses Lithium-Polymer (LiPo) batteries only. For the 1.11 m H_2PlasmaRay 1.11 with a 300 - 379 bar internal tank (1 kg) the 0.8-liter volume and 16.5 grams of gaseous hydrogen mass is quite small. The overall specific energy is 110 Wh/kg and thus is lower than that of LiPos with 150 - 200 Wh/kg.

Nevertheless, the fuel cell technology gets more interesting with the bigger 2.22 m scale model. The specific energy with gaseous hydrogen storage goes beyond values of 300 Wh/kg.

Furthermore, there are amazing developments from MetaVista in South Korea and the USA regarding how to use liquid hydrogen for future drone applications. In 2019, MetaVista broke the multi rotor UAV Flight Time World Record by demonstrating a flight duration of 12 hours, 7 minutes and 5 seconds. The multicopter was powered by an 800 W Intelligent Energy Fuel Cell Module and 390 grams of hydrogen stored in a 6-liter liquid hydrogen cylinder for up to 6500 Wh of electrical energy.

Package Drones H_2PlasmaRay 1.11 and PlasmaRay 1.11

The H_2PlasmaRay 1.11 is a 1:6 scale model and technology demonstrator for a future air taxi with a 6.66 m wingspan. It is produced with laser sintering and will use an 800 W fuel cell module from Intelligent Energy and a 0.8-liter 300 bar pressure tank with 16.5 grams of gaseous hydrogen as described before. The electrical energy is 275 Wh in gaseous form and 867 Wh in the liquid hydrogen case.

But why do we need hydrogen powered flight vehicles? Today, the aviation industry produces about 115 grams of CO_2 per passenger kilometer. This equals about 859 million tons of CO_2 emission per year. The contribution to global CO_2 emissions is just 2% but it is expected to double by 2030, and we really don't know the future impact of huge manned rockets for intercontinental and even interplanetary flights such as those promoted by SpaceX. We also don't know the future impact of rocket-powered suborbital spacecraft as promoted by companies like Virgin Galactic for the growing near-space to space tourism industry. So we need to look for disruptive technologies to replace our present jet engines and chemical rockets, even with efforts that are just step by step.

Fuel cell technology is one way to reduce CO_2 emissions. It is a technology which presently provides more specific energy than average LiPo-batteries with 150 - 200 Wh/kg.

Also, more powerful solid-state batteries are already on the way: Samsung recently unveiled new solid-state lithium metal batteries with an estimated specific energy of 360 Wh/kg. Other companies like TeraWatt Technology even announced a record-breaking specific energy of 432 Wh/kg (1122 Wh/l). Sion Power even talks about 650 Wh/kg. These new batteries will be commercially available in a few years from now and then they will help companies like Lilium to meet their goals which may be challenging today, but will certainly be possible in the near future. Just imagine, the limitations we may face today can change tomorrow as our ideas evolve based on new innovations such as the next generation fuel cells with 960 Wh/kg from HyPoint. Today, we are just now on the path to build electric drones which can fly 300 km at 300 km/h speed with a useful payload of 300 kg. Joby Aviation and Lilium might already cover two of those three parameters that we all dream of. To cover all three, we combine a drag reduced flying wing design with a state-of-the-art hydrogen fuel cell technology from Intelligent Energy with at least 350 - 450 Wh/kg.

With the use of liquid hydrogen tanks those "dream" parameters can be even extended from 300 to 1000 km and beyond to cover longer business routes like Munich and London. We will see further details on this later in the discussion of the H_2PlasmaRay 6.66. On the way to developing

For the PlasmaRay 1.11 a special 0.8-liter tank can carry 52.0 grams of liquid hydrogen with electrical energy of 867 Wh. A standard 0.8-liter composite cylinder with 300 bar can only carry 16.5 grams of gaseous hydrogen and thus provide about 275 Wh of electrical energy as modern fuel cells have 40 - 60% efficiency. For the PlasmaRay 1.11 with an 800 W Intelligent Energy Fuel Cell, liquid hydrogen would provide an amazing amount of specific energy of a minimum of 325 Wh/kg which is about two times higher than current LiPo batteries.

hyperfast air taxis we plan to use all scale-models from 1:6 (11 - 18 kg MTOW), 1:4 (25 - 40 kg MTOW), 1:3 (70 kg MTOW) to 1:2 (210 kg MTOW) as commercial package drones.

Wingcopter for instance is the fastest fixed-wing mini drone with a Guinness World Record of 240 km/h. It is presently also the drone with the best weight-to-payload ratio among fixed-wing VTOLs on the market. The PlasmaRay 1.11 (18 kg MTOW) and the bigger PlasmaRay 1.66 (25 - 40 kg MTOW) have the potential to exceed all those numbers, setting new records.

All types will have optional NVIDIA based Artificial Intelligent (AI) swarm controllers with six fisheye cameras to safely fly 6-13 flying wings (Swarm Flyer) in half-diamond and full-diamond formations to reduce the overall drag by up to 65%. More details about our bionic swarm technology will be discussed at the Revolution.Aero Europe 2020 meeting in London.

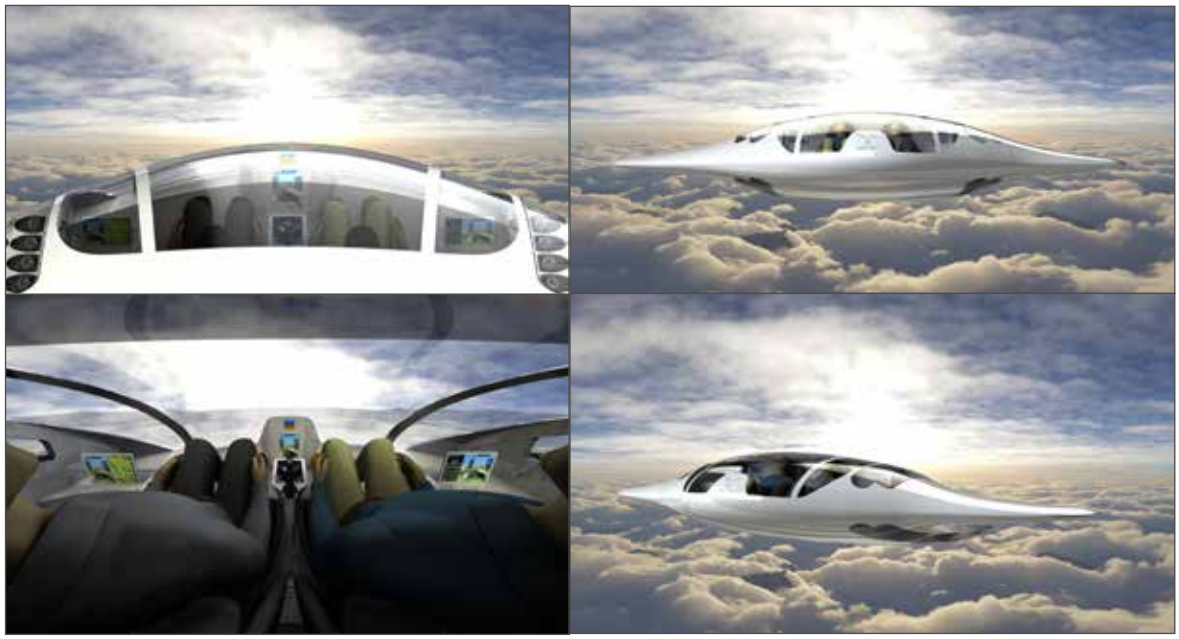
Today, it is not widely known that even birds use drag-induced electrostatic fields to control V-formation. Other insects like bumblebees apply electrokinetic effects to increase dynamic viscosity. It is still difficult to understand why they can fly at amazing Himalayan altitudes beyond 7,600 meters (25,000 feet). Here on this topic, our company Electrofluidsystems is truly inspired by nature.

Our motto is: **We Make Dreams Fly.** For now, the PlasmaFalcon and PlasmaRay UAS do not use electroviscous effects on the micro or nano-scale. But all of our present models already use dynamic corona discharge to control separated air flow at high angles of attack (alpha). Similar critical situations can be also induced at horizontal flight when strong crosswinds start to blow from underneath or come from sideways to induce dangerous flow separation at the outer wings. These are the most critical situations for flying wings. Plasma helps to stabilize.

There are different plasma flow control techniques which are discussed in our scientific papers to reduce drag and increase crosswind stability by 60% and more. Pulsed plasma actuators, for instance, can cause lift enhancement by 25-75 % and drag reduction by 10-20 %. Pulsed electric wind induces rolling cylinder vortices which run over the wings and keep the air attached even at very high angles of attack. At normal cruise conditions there is still some lift enhancement by 10-15 % and drag reduction by 5-10 %.

These are all techniques which, when necessary, would enable our Plasma Flyers to glide at very high altitudes just by “flapping“ the fields. Special nanosecond pulsed plasma actuators would then be used for anti- and de-icing means. Plasma control techniques will also be used later on PlasmaFalcon propellers and PlasmaRay lift-fans to make them more efficient and operative at high

Parameter	Wingcopter	PlasmaRay 1.11	H_2PlasmaRay 1.11
Wing span	1.78 m	1.11 m	1.11 m
Max. take-off weight	15.6 - 18.0 kg	17.7 kg	11.1 kg
Battery weight	4.0 kg	8.3 / 6.2 / 4.1 kg	2.0 kg
Fuel cell weight	-	-	2.4 kg
Empty weight	5.6 - 8.0 kg	5.4 kg	4.7 kg
Payload weight	2.0 / 4.0 / 6.0 kg	4.0 / 6.1 / 8.2 kg	2.0 kg
Range	100 / 85 / 45 km	175 / 125 / 75 km	95 - 225 km
Cruise speed	100 - 150 km/h	230 - 270 km/h	230 - 270 km/h
Top speed	240 km/h	300 km/h	300 km/h
Power available	700 Wh	1700 / 1275 / 850 Wh	700 – 1292 Wh
Battery power	700 Wh	1700 / 1275 / 850 Wh	425 Wh
VTOL power (2-3 min)	?	10360 W	7770 W
Cruise power	?	1680 W	1150 W



altitudes which now are usually only reachable by MALE or HALE type UAVs.

The mid-term vision for 2023-2025 is to have UAS products with 1.66 m, 2.22m, 3.33 m and 6.66 m span width as 1:4, 1:3, 1:2 and 1:1 technology demonstrators for future hyperfast air taxis H_2PlasmaRay 6.66, H_2PlasmaRay 8.88, H_2PlasmaRay 11.1 and H_2PlasmaRay 13.3 Strato.

Passenger Drones (Air Taxis) H_2PlasmaRay 6.66 to H_2PlasmaRay 19.9

H_2PlasmaRay 6.66 is an electric vertical take-off and landing (eVTOL) air taxi with a maximum take-off-weight (MTOW) of 900 kg. It has a bionic Stingray-shaped flying wing design with two separate propulsion units for VTOL and cruise. A distributed propulsion of 10 Schübeler electric ducted fan (EDF) jets, each 195 mm in diameter, used for horizontal flight. 38 EDF jets of the same type are used for vertical take-off and landing (VTOL). These jets can generate 950 kg of static thrust in continous mode or 1050 kg for a short period of time. The H_2PlasmaRay will have similar landing gears like the new Rhaegal drone of Sabrewing to enable alternative starts from runways and emergency landings on highways. The avionics is inspired by Thales FlytX and will use several touchscreens and a central joystick for optional pilot control.

Parameter	Lilium 2-Seater	H_2PlasmaRay 250	H_2PlasmaRay 300
Wing span	6.00 m	6.66 m	6.66 m
Max. take-off weight	690 kg	900 kg	900 kg
Battery weight	240 kg	137 kg	-
Fuel cell weight	-	81 kg (48 kW)	122 kg (72 kW)
H_2-Tank weight	-	82 kg	123 kg
H_2 weight (gaseous)	-	3.8 kg (152 l, 379 bar)	5.7 kg (228 l, 379 bar)
Empty weight	250 kg	346 kg	350 kg
Payload weight	200 kg	250 kg	300 kg
Range	200 km	250 km	300 km
Cruise speed	250 km/h	250 km/h	300 km/h
Top speed	270 km/h	270km/h	322 km/h
Power available	38 kWh	83 kWh	95 kWh
Battery power	38 kWh	20 kWh	-
VTOL power (4 min)	432 kW	526 kW	526 kW
Cruise power	28 kW	46 kW	61 kW

Future cargo versions will alternatively use six plasma flow controlled lift-fans for eVTOL-mode in a similar way as shown by Valkyrie Systems Aerospace for the Eagle Hoverjet.

Lilium previously worked on a 2-seater with about a 6 m wingspan. Beside you can find estimated parameters of the Lilium prototype compared with our 2-seater H_2PlasmaRay 6.66.

The next bigger H_2PlasmaRay 8.8 will be a 5-seater with an 8.8m wingspan and 1,850kg MTOW as a direct competitor to fast flyers like Joby Aircraft S4 and Lilium Jet. A cargo version could easily carry 1,000 lbs (454 kg) and would be a short to mid range competitor to Rhaegal RG-1. H_2PlasmaRay 11.1 would have a MTOW of 3,000 kg, H_2PlasmaRay 13.3 of 5,700 kg, LH_2PlasmaRay 18.0 Strato of 10,500 kg and LH_2PlasmaRay 19.9 Strato of 13,500 kg with a cargo volume of up to 4.5 tons when used as long range transport drone.

The specific energy is 378 Wh/kg with gaseous and +1,000 Wh/kg with liquid hydrogen. H_2PlasmaRay 6.66 – 250 / 300 could store about 12 / 18 kg of liquid hydrogen which would provide about 200 / 300 kWh of electrical energy. So, a LH_2PlasmaRay 6.66 - 250 / 300 would have an amazing range of 1,000 / 1,300 km. Just imagine the range of a LH_2PlasmaRay 19.9.

Depending on speed, range and payload the H_2PlasmaRay will use LiPo batteries with +20 kWh and 10 - 15 Intelligent Energy 4.8 kW fuel cells units. Similar Intelligent Energy fuel cells were used by Boeing Phantom Works to achieve the world's first hydrogen manned flight in 2015.

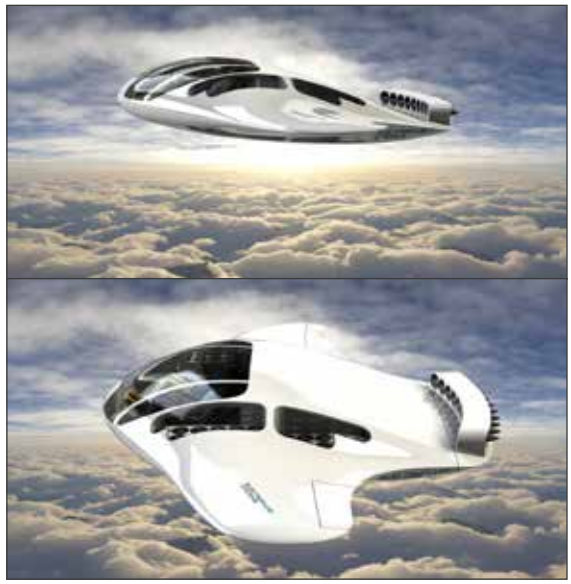
'Water will be the coal of the future.' Jules Verne, The Mysterious Island , 1874.

About Electrofluidsystems

Berkant Göksel is an innovator, entrepreneur and futurist with over 20 years of expertise in cutting-edge aerospace, energy and plasma engineering. He has a MSc. equivalent Diploma in Aerospace Engineering from Berlin Technical University and will complete his Doctoral Study in Energy Process Engineering from Berlin Technical University in summer 2020. Berkant previously worked as research scientist at Berlin Technical University.

Ahmet Bozkurt is an innovator and entrepreneur with over 5 years of expertise in robotics, aerospace, mechanical and computer engineering. He has a BSc. Diploma in Mechanical Engineering from Yıldız Technical University and will complete his MSc. Study in Mechanical Engineering from Boğaziçi University in summer 2020. Ahmet previously worked as senior engineer for the Baykar-owned air taxi company Cezeri Artificial Intelligence and Robotics Technologies in Istanbul.

Celal Derinkök is an aerospace enthusiast and entrepreneur with over 20 years of expertise in management and international business development. He has a MBA and PhD in Strategic Studies from Yeditepe University in Istanbul. Celal previously worked for different family offices in Europe, Turkey, Near and Far East



Gulfstream G600 Receives EASA Approval

Aircraft Combines Advanced Technology, Superb Performance and Stylish Design

Gulfstream Aerospace Corp. announced its award-winning Gulfstream G600™ earned type certificate approval from the European Union Aviation Safety Agency (EASA), enabling aircraft registrations and deliveries to begin for EU customers on 11 May,2020.

"The Gulfstream G600's advanced technology, high-speed performance and unparalleled efficiency will serve the intercontinental European business traveler well," said Mark Burns, president, Gulfstream. "We are excited to get this aircraft in the hands of customers throughout the continent."

At its high-speed cruise of Mach 0.90, the G600 can carry passengers 5,500 nautical miles/10,186 kilometers nonstop — enough range to travel from London to Los Angeles or from Paris to Hong Kong. At its long-range cruise speed of Mach 0.85, it can fly 6,500 nm/12,038 km. Its maximum operating speed is Mach 0.925.

The aircraft, which entered service Aug. 8, 2019, has already earned 23 city-pair speed records. Among those records was a flight of 4,057 nm/7,514 km from Savannah to Geneva that took just 7 hours and 21 minutes at Mach 0.90.

The G600 is equipped with the revolutionary Symmetry Flight Deck™, which includes active control sidesticks, a first for business aviation, and 10 touchscreens. The advanced technology has earned Gulfstream several awards, including Aviation Week's 2020 Business Aviation Platform Laureate Award and 2017 Business Aviation Technology Laureate Award, Business Intelligence Group's 2019 Innovation Award and Avionics Magazine's 2015 Technology Company of the Year.

The aircraft's interior won top honors in Private Jet Design at the 2018 International Yacht & Aviation Awards. The cabin can be configured for up to three living areas and a crew compartment or four living areas, and has industry-leading sound levels, a low cabin altitude and 100 percent fresh air, which reduce fatigue and increase mental awareness. The G600's 14 panoramic oval windows let in an abundance of natural light.

© Gulfstream

The Institute for Women Of Aviation Worldwide (iWOAW) located Montreal, QB-Canada, Announced Winners of the 2020 Fly It Forward

The Institute for Women Of Aviation Worldwide (iWOAW) located Montreal BC-Canada, announced Winners of the 2020 Fly It Forward Awards and announced the winners in their website. Aeronautical Engineer Can Erel (CE) Chief Advisor to Aviaiton Turkey Editorial Board is one of the awarded names of the week.

Participation in the 10th annual Women Of Aviation Worldwide Week was the highest to date. 76,000 women and girls had the opportunity to discover the many facets of the air and space industry including flight at 316 events scattered across 49 count-ries. 7,245 took flight in airplanes, helicopters, ULM, hand gliders, and balloons.

Women Of Aviation Worldwide Week Attracts Record Numbers of Women and Girls in 2020

By iWOAW Team

76,000 girls of all ages attended 316 aviation outreach events organized to celebrate the 10th annual Women Of Aviation Worldwide Week, March 2-8

Launched 10 years ago to celebrate the March 8 anniversary of the world's first female pilot licence obtained by Raymonde de Laroche in 1910, Women Of Aviation Worldwide Week (WOAW) is now widely celebrated across the globe.

During the Week's 10th edition, March 2-8, 2020, 76,000 women and girls attended 316 aviation outreach events scattered across 49 countries on all continents to discover air and space careers, hands-on – a 30% year-over-year increase.

2020 also saw the highest level of engagement among industry stakeholders who used social media campaigns to raise awareness of women's historical contributions to the air and space industry and highlight their female employees as visible role models.

Over 3,500 individuals invested nearly 50,000 volunteer hours to give women and girls in their communities the opportunity to visit aerospace facilities, try various non-traditional activities, connect with women working in the industry today, and just have fun.

Pilots did not hesitate to use their own funds to introduce more than 4,786 women and girls to the magic of flight on a small aircraft, free of charge. Many flight training schools offered at cost discovery flights to women and girls during the Week and prompted another 2,459 women and girls to take the plunge outside of official events.

"This experience was amazing for my young daughters and me. We are so lucky to have participated," said Julie Wilkins who flew at Glacier Air in Squamish, Canada. She is now learning to fly to compete for the $10,000 Fly It Forward® scholarship offered by the Institute for Women Of Aviation Worldwide (iWOAW) and CAE awarded to the first eligible woman who flies solo.

Tusaş Engine Industries (TEI), a major aircraft engine manufacturer in Turkey, has seen its efforts to recruit and retain women improve significantly thanks to its annual participation. This year, TEI opened its factory doors to 110 young women and gave them the opportunity to see how aviation engines are manufactured from the receipt of raw materials to final product release. *"Most women expressed that working in the aviation industry was not on their minds until this tour, but that they would like to take part in the aviation industry in the future,"* reports Can Doğu, TEI.

"10 years ago, there were no widespread gender-specific efforts to attract women and girls into the industry," says Mireille Goyer, an airline-rated pilot and the founder of the Week. "Today, the Week has become the largest industry-wide effort to introduce women and girls to the industry's opportunities."

Perhaps more importantly, the award-winning methods serve as inspiration for many smaller association-based initiatives that have sprouted since.

"It is truly humbling to know that my little idea has made possible for so many women and girls to consider and enjoy rewarding careers in the air and space industry," adds Goyer.

The Institute for Women Of Aviation Worldwide (iWOAW) is proud to name the winners of the 2020 Fly It Forward® Awards and prizes for groups, aviation enthusiasts, and the women and girls who discovered aviation.

"WOAW is so generous and makes it fun and easy!" said Robin Guillian, Director of Aviation, at the Vermont Technical College in the United States, one of the many participating schools.

Women Of Aviation Worldwide Week 2021 will take place across the world from March 8 to 14, 2021.

iWOAW is proud to name the Winners of the 2020 Fly It Forward® Awards and prizes for groups, aviation enthusiasts, and the women and girls who discovered aviation...

For Communities & Corporations

Most Female Friendly Airport Worldwide Award

Eligible airport hosting one or more registered WOAW activities that generates the highest number of valid female Fly It Forward® flight reports for the Week.

2020 Winner(s):
Feilding Airport, NEW ZEALAND

Most Female Friendly Aviation Corporation Worldwide Award

For-profit aviation-related corporation with 100 employees or more that organizes at least one registered WOAW activity (event or campaign) in its facilities and generates the highest level of engagement among its employees (percentage of employees who complete a valid WOAW activity report as a pilot, assistant, or organizer) for the Week

2020 Winner(s):
TUSAŞ Engine Ind. Inc., TURKEY

Most Female Friendly Aviation Association Worldwide Award

Non-profit aviation-related corporation with 100 members (individual or corporate) or more that organizes at least one registered WOAW activities (event or campaign) in its facilities and generates the highest level of engagement among its members (percentage of members who complete a valid WOAW activity report.

2020 Winner(s):
Turkish Aeronautical Association (THK), TURKEY

For Teachers, Professionals, & Enthusiasts

Most Productive Organizer Worldwide Award

Activity including Fly It Forward® flights - organizer of a registered WOAW activity who earns the most organizer points. In the case of equal point levels, the organizer with the highest average review rating will win.

2020 Winner(s):
Colette Morin, CANADA

Other activity - organizer of a registered WOAW activity who earns the most organizer points. In the case of equal point levels, the organizer with the highest average review rating will win.

2020 Winner(s):
Farai Ncube, ZIMBABWE

Most Dedicated Female Pilot Worldwide Award

Registered female pilot who conducts the most reported flights (number of girls reporting divided by number of passenger seats) during the Week.

2020 Winner(s):
Nikki King, NEW ZEALAND

Most Acclaimed Organizer Worldwide Award

Activity including Fly It Forward® flights - organizer of an registered WOAW activity hosting more than 50 who received the highest average review rating as reported by guests and volunteers. In the case of equal average review ratings, the organizer with the most reviews will win.

2020 Winner(s):
Tom Ball, NEW ZEALAND

Other activity - organizer of a registered WOAW activity hosting more than 50 who received the highest average review rating as reported by guests and volunteers. In the case of equal average review ratings, the organizer with the most reviews will win.

2020 Winner(s):
Can Erel, TURKEY

Most Supportive Male Pilot Worldwide Award

Registered male pilot who conducts the most reported flights (number of girls reporting divided by number of passenger seats) during the Week.

2020 Winner(s):
David Riley, USA

For Women & Girls

Fly It Forward® Scholarships

Fly It Forward® Scholarships reward the women who decide to learn to fly without delays after discovering flight during the Week. The first woman among eligible candidates to fly solo will win a $10,000 CAD Fly It Forward® scholarship funded by CAE in 2020 to...

2020 Winner(s):

Name to be posted upon first eligible solo report submission

The GermFalcon Sanitizes B737 and A320 in 3 Minutes

Dimer UVC Innovations that is Woman's Business Enterprise (WBENC) certified company, had created a UV-C-emitting cleaning machine dubbed as GermFalcon for the airline industry in 2014 - but it's only with the coronavirus that demand has really taken off.

The GermFalcon is a fast, affordable, convenient and effective way to eliminate germs from even the most hard-to-reach places on a plane Cleaning procedures and frequencies vary due to short turn times and the inefficiency of available cleaning products.

Disinfecting with chemical products requires several minutes of "wet time" to be effective — followed by a water rinse on food-serving and -prep surfaces. They may lack the power to kill a broad spectrum of germs that cause disease. Disinfecting chemicals are toxic and not environmentally friendly.

Antimicrobial paints, coatings and plastics are usually silver ion-based or feature disinfecting chemicals. They are not offered for fabrics or leather. Antimicrobials are effective when the surface is left undisturbed for 24 hours, at body temperature (98.6°F/37°C) and 90% humidity. These conditions do not apply on a commercial aircraft.

The GermFalcon sanitizes all surfaces without any toxic after-effects. Plus, it's fast! It takes about a minute to sanitize a single seat using a chemical disinfectant. The GermFalcon can treat 54 seats in that same minute. In practical terms, it can take more than two hours to apply a multi-step chemical disinfectant to the surfaces of a narrow body jet. The GermFalcon can sanitize that same area in less than 10 minutes!

All of this amounts to a tremendous savings of time, labor and product costs — not to mention the potential health benefits to passengers and crew.

According to Company states this sanitizing kills %99 on B737 and A320 in 3 minutes and 93% of passengers would choose the airline that routinely disinfects over its competitor.

Airbus Provides Update on March Commercial Aircraft Orders & Deliveries and Adapts Production Rates in COVID-19 Environment

- *Business impacted by COVID-19 pandemic*
- *21 net orders and 36 deliveries in March 2020*
- *290 net orders and 122 deliveries in Q1 2020*
- *Production rates revised downwards adapting to new market environment*

After a solid commercial and industrial performance at the beginning of the year, Airbus (stock exchange symbol: AIR) is now revising its production rates downwards to adapt to the new Coronavirus market environment.

In Q1 2020, Airbus booked 290 net commercial aircraft orders and delivered 122 aircraft. A further 60 aircraft were produced during the quarter, highlighting the solid industrial performance, however they remain undelivered due to the evolving COVID-19 pandemic. 36 aircraft were delivered in March across the different aircraft families, down from 55 in February 2020. This reflects customer requests to defer deliveries, as well as other factors related to the ongoing COVID-19 pandemic.

The new average production rates going forward have been set as follows:

- *A320 to rate 40 per month*
- *A330 to rate 2 per month*
- *A350 to rate 6 per month*

This represents a reduction of the pre-coronavirus average rates of roughly one third. With these new rates, Airbus preserves its ability to meet customer demand while protecting its ability to further adapt as the global market evolves. Airbus is working in coordination with its social partners to define the most appropriate social measures to adapt to this new and evolving situation.

Airbus is also addressing a short-term cash containment plan as well as its longer-term cost structure.

"The impact of this pandemic is unprecedented. At Airbus, protecting our people and supporting the fight against the virus are our chief priorities at this time. We are in constant dialogue with our customers and supply chain partners as we are all going through these difficult times together", said Airbus Chief Executive Officer Guillaume Faury. "Our airline customers are heavily impacted by the COVID-19 crisis. We are actively adapting our production to their new situation and working on operational and financial mitigation measures to face reality."

In its effort to support the fight against the COVID-19, Airbus has carried out extensive work in coordination with social partners to ensure the health and safety of its employees. This has been achieved by implementing new stringent work standards and processes. Airbus is contributing to the development, sourcing and ferrying of medical equipment, including facemasks and ventilators, in support of medical health services.

Airbus adapts Commercial Aircraft Production and Assembly Activities in Northern Germany and Alabama Sites in COVID-19 Environment

06 April 2020 – Airbus is temporarily adapting commercial aircraft production and assembly activity at its German sites in Bremen and Stade and pausing production at its A220/A320 manufacturing facility in Mobile, Alabama in the United States. These actions are being taken in response to several factors related to the ongoing COVID-19 pandemic including high inventory levels in the sites and the various government recommendations and requirements which impact at different stages of the overall industrial production flow. Airbus remains committed to meeting customer demand. Commercial Aircraft production and assembly activities in Bremen will be paused from 6 April until 27 April inclusive, with key business support services continuing on the site. Airbus in Stade will pause production and assembly from 5-11 April inclusive, with some additional pause days in the weeks that follow in selected production departments. Key business support services will also remain active on the site. In Mobile, the pause in production begins this week and is expected to last until 29 April. Certain activities will continue on

site, including building and installation maintenance, aircraft maintenance, some critical product safety and customer driven operations, receipt and control of materials and components, critical administrative support and preparation of activity restart. All ongoing work in Bremen and Stade in Germany and Mobile, Alabama U.S. will be done in adherence to the required hygiene measures and social distancing. Airbus is supporting efforts globally to tackle the COVID-19 crisis and has carried out extensive work in coordination with social partners to ensure the health and safety of its employees. This has been achieved by implementing stringent health and safety measures, while securing business continuity across the company. During the past two weeks, Airbus paused production and assembly work in France and Spain for four days to implement the necessary stringent health and safety measures. Production and assembly in France has resumed gradually since 23 March. Commercial aircraft wing production operations in the UK and commercial aircraft production activities in Spain and Canada have been temporarily paused reflecting stock levels and latest government restrictions. Airbus continues to closely monitor and respond to the changing environment to maintain business continuity across its global industrial stream

$240 Million New Funds Enable Lilium to Deliver Regional Air Mobility as Early as 2025

Lilium, the Munich-based aviation company developing an all-electric, vertical take-off and landing aircraft for regional air mobility, announced the completion of an internal funding round worth more than $240m. The round was led by Tencent, with participation from other existing investors including Atomico, Freigeist and LGT.

The new funds bring the total sum raised to date to more than $340m. They will be used to support further development of the Lilium Jet as well as underpinning preparations for serial production in Lilium's newly-completed manufacturing facilities.

As well as designing and manufacturing the Lilium Jet, the company plans to operate a regional air mobility service as early as 2025 in several regions around the world. It recently celebrated the completion of the first stage of flight testing, with the five-seater Lilium Jet demonstrator flying at speeds exceeding 100 km/h.

Commenting on the announcement, Christopher Delbrück, Chief Financial Officer, Lilium, said: "This additional funding underscores the deep confidence our investors have in both our physical product and our business case. We're very pleased to be able to complete an internal round with them, having benefited greatly from their support and guidance over the past few years.

"The new funds will enable us to take big strides towards our shared goal of delivering regional air mobility as early as 2025."

Commenting on their role as lead investor for the internal round, David Wallerstein, Chief eXploration Officer, Tencent, said: "At Tencent we're committed to supporting technologies that we believe have the potential to tackle the greatest challenges facing our world.

"Over the last few years we've had the opportunity to see the professionalism and dynamism with which Lilium are approaching their mission and we're honored to be supporting them as they take the next steps on their journey."

© Lilium

Pegasus Receive the New A320neo Family Aircrafts with e-delivery Process by Airbus

A new aircraft hand-over and "e-Delivery" virtual process has recently commenced operation, guaranteeing continuation of Airbus' delivery stream, while integrating the required health & safety requirements during the ongoing COVID-19 pandemic. The first customer to adopt the remote end-to-end process is Pegasus Airlines, which in the last few days received three brands new 'e-delivered' A320neo Family aircraft. More airlines will follow likewise in the coming days and weeks. This new e-Delivery approach comprises three main stages: (a) Technical Acceptance Completion (TAC) tasks delegated to Airbus (or to a local third party appointed by the airline); (b) electronic Transfer-of-Title (electronic ToT); and (c) ferry-flight and subsequent reception of the aircraft at the customer's base.

For the TAC (which is a prerequisite for ToT) the airline can delegate Airbus to perform, on its behalf, all the necessary actions. These include the 'ground-check', the acceptance test flight, acceptance manuals and procedures, as well as minor cosmetic rework if needed. Then for the ToT completion, Airbus' and customers' teams take benefit from a new secure collaborative platform: "e-SalesContracts". This brings them all together – wherever they happen to be – into one real-time virtual environment where they can optimise and simplify all the contractual transactions, from the paperless drafting and commercially negotiating the delivery documents up to the remote ToT digital signature. This platform thus obviates the need for any of the customer's own staff to be physically present at the Airbus Delivery Centre. After the TAC and ToT formalities are complete, the subsequent ferry-flight is also performed in a health-wise safe manner whereby the customer's own flight crew (or an appointed third party) can pick-up the sanitized aircraft and fly it straight back from the delivery center to the airline's home base.

As well as affording a means of safe business continuity during the current COVID-19 crisis, the e-Delivery process, especially its new collaborative digital aspects – which confer enhanced workflow efficiencies, flexibility, transparency, plus a more environmentally-friendly and smoother overall customer experience – could become the blueprint for Airbus and its customers going forward.

© Airbus

Potentially 1.2 billion Fewer International Air Travellers by September 2020, Says New ICAO Forecast

Montréal, 22 April 2020 – Compared to "business-as-usual", by September 2020 international air passenger totals could drop by as many as 1.2 billion travellers according to the latest projections from the International Civil Aviation Organization (ICAO).

Its estimates also show that international capacity could drop by as much as two-thirds from what had been forecast for the first three quarters this year, leading airline revenues to drop by as much 160 to 253 billion dollars for the January to September period.

Europe and the Asia-Pacific will be hardest hit by the capacity and revenue impacts, followed by North America. Similarly, the most substantial reduction in passenger numbers is expected to be in Europe, especially during its peak summer travel season, followed by the Asia-Pacific.

The UN's civil aviation agency has been providing regularly updated analyses on the economic impact of COVID-19 on air transport since early February 2020.

Because air connectivity is so critical to economic and sustainable development in every world region, this information is of critical importance to the many national governments and regional organizations now planning for their COVID-19 economic recoveries.

"As overall severity and duration of the pandemic are still uncertain, ICAO has developed six different recovery paths under two indicative scenarios to explore the potential short-term economic implication of the COVID-19 pandemic," advised ICAO Secretary General Dr. Fang Liu in a message to Representatives of ICAO's Member States.

Boeing has Accomplished the First Flight of the Second 777X

The second 777X airplane was successfully conducted its first flight. Airplane flew for 2 hours and 58 minutes over Washington state before landing at Seattle's Boeing Field. This airplane is the second of four in a dedicated flight test fleet and will test handling characteristics and other aspects of airplane performance. An array of equipment, sensors and monitoring devices throughout the cabin allows the onboard team to document and evaluate the airplane's response to test conditions in real time.

The 777X test plan lays out a comprehensive series of tests and conditions on the ground and in the air to demonstrate the safety and reliability of the design. To date, crews have flown the first airplane nearly 100 hours at a variety of flap settings, speeds, altitudes and system settings as part of the initial evaluation of the flight envelope. With initial airworthiness now demonstrated, the team can safely add personnel to monitor testing onboard instead of relying solely on a ground-based telemetry station, unlocking testing at greater distances.

© Boeing

Embraer's New, Enhanced Phenom 300E Receives ANAC, EASA & FAA Approval, Achieving Triple-Certification

Embraer Executive Jets announced that the new Phenom 300E — the fastest and longest-ranged single-pilot jet, capable of reaching Mach 0.80 — was granted its Type Certificate by ANAC (National Civil Aviation Agency of Brazil), EASA (European Union Aviation Safety Agency) and the FAA (Federal Aviation Administration). The new Phenom 300E is the most enhanced version of the Phenom 300 series, which was the most delivered business jet series in the 2010s. With its modern, clean-sheet design, best-in-class performance, exceptional comfort and excellent utility, the new Phenom 300E sets the standard for the light jet category. The new Phenom 300E achieved its certification goals with an intracontinental range of 2,010 nautical miles (or 3,723 km, considering NBAA IFR reserves with 5 passengers), a high-speed cruise of 464 ktas, a maximum payload of 2,636 lb (1,196 kg), a takeoff distance of only 3,209 ft (978 m) and an unfactored landing distance of 2,212 ft (674 m). In addition, the new Phenom 300E received both avionics upgrades and enhancements that lowered cabin noise levels. "The triple-certification by ANAC, EASA and the FAA reaffirms the position of the Phenom 300 series as the best light jet ever made, offering the ultimate experience in business aviation," said Michael Amalfitano, President & CEO, Embraer Executive Jets. "Phenom 300E owners can be assured of the jet's performance, with our ongoing commitment to unparalleled technology, safety and comfort."

The enhanced Phenom 300E will be available for delivery starting in the second quarter.

UPS Flight Forward, CVS to Launch Residential Drone Delivery Service

UPS and CVS Health Corporation said UPS subsidiary UPS Flight Forward (UPSFF) will use drones to deliver prescription medicines from a CVS pharmacy to The Villages, Florida for the largest U.S. retirement community, home to more than 135,000 residents. The service will use Matternet's M2 drone system.

Drone transport offers a fast delivery option for medicines that are time-senstive, while supporting social-distancing efforts. Drone delivery options provide individuals with a convenient alternative to visiting a pharmacy. This program can also help prioritize the protection of our healthcare heroes.

"Our new drone delivery service will help CVS provide safe and efficient deliveries of medicines to this large retirement community, enabling residents to receive medications without leaving their homes," said Scott Price, UPS chief strategy and transformation officer. "UPS is committed to playing its part in fighting the spread of Coronavirus, and this is another way we can support our healthcare customers and individuals with innovative solutions."

UPS and CVS last year announced plans to jointly explore the use of drone delivery. The companies successfully completed their first drone deliveries of medical prescriptions from a CVS pharmacy in Cary, N.C. in November 2019.

"Now more than ever, it's important that our customers have access to their prescriptions," said Jon Roberts, executive vice president and chief operating officer of CVS Health. "In addition to our in-store pickup, free delivery services and drive through pickup, this drone delivery service provides an innovative method to reach some of our customers."

The new service in The Villages in central Florida begins in early May under the Federal Aviation Administration's Part 107 rules, with authority to operate through the pandemic and explore ongoing needs as they arise after that period. The operation could expand to include deliveries from two additional CVS pharmacies in the area.

The first flights will be less than one half mile and be delivered to a location near the retirement community. Initially, a ground vehicle will complete the delivery to the resident's door.

Last year, UPS and Matternet initiated an ongoing revenue-generating drone delivery service at WakeMed's flagship hospital and campus in Raleigh, N.C., completing more than 3,700 flights to date under the FAA's Part 107 rules. UPS also established UPS Flight Forward in June 2019, which later earned the Federal Aviation Administration's Standard Part 135 Air Carrier certification to operate a drone air carrier in September 2019. The companies later initiated service at the University of California San Diego Health system, also under the FAA's Part 107 rules.

UPS Flight Forward has been exploring prospects for supporting the healthcare industry's fight to stop the spread of Coronavirus. In April, the company announced its participation in tests in Virginia with the US government and partners to determine how unmanned aerial systems can assist medical professionals in their fight to stop the spread of the virus.

Italian Firm Aviointeriors Proposed New Solutions for the Post-Coronavirus

The Novel Coronavirus (COVID-19) pandemic, which affects the entire world and the global aviation industry negatively, also brings new business models and changes for the airlines and the aviation industry. As a reflection of the worldwide impact of coronavirus, the Italian company Aviointeriors, which has been producing aircraft cabin interiors and passenger seats for over 40 years, has proposed new solutions that can be used by airline companies after the coronavirus outbreak.

The first product introduced by Aviointeriors is the kit-level "Glassafe" solution, which can be installed on existing seats to make close proximity safer among passengers sharing the same seat. Glassafe is made of transparent material to make the entire cabin harmonious and aesthetically light, but perfectly fulfilling the objective of creating an isolated volume around the passenger to avoid or minimize contacts and interactions via air between passenger and passenger, to reduce the probability of contamination by viruses or other. Glassafe is supplied in various executions with fixing systems to the seat that allow easy installation and removal. Glassafe can be provided in opaque material or with different degrees of transparency, all easy cleaning, and required hygiene standards.

In addition to the Glassafe solution, another product introduced by Aviointeriors was the "Janus." Inspired by the two-faced Janus, the god of Ancient Rome, this proposal is distinguished by the reverse position of the center seat of the triple to ensure the maximum isolation between passengers seated next to each other. While passengers sitting on the side seats - aisle and fuselage - continue to be positioned in the flight direction, the passengers in the center are facing backward. This arrangement allows all three passengers to be separated with a shield made of transparent material that isolates them from each other, creating a protective barrier for everyone. Additionally, each passenger has its own space isolated from others, even from people who walk through the aisle. Each place of the Janus seat is surrounded on three sides by a high shield that prevents the breath propagation to occupants of adjacent seats. The Janus is made of easy cleaning and safe hygienic materials. The option is available with the shield in opaque material or with different degrees of transparency.

Jetex Cargo Operations in China

As China is lifting travel restrictions, the Jetex Operations Center in Beijing is strategically positioned to provide around-the-clock support for air cargo operators and cargo charter services throughout China.

Jetex can arrange all the flight operation needs of Trip planning and coordination, Permits, slots and clearances, Ground handling and fuel supply, Flight monitoring and tracking, Supervisory services

Jetex can provide a cargo charter service to transport essential medical supplies and relief goods and comprehensive flight solutions for air cargo business operations.

Adil Karaismailoğlu Appointed as the Minister of Transport & Infrastructure of Republic of Turkey

Adil Karaismailoğlu was appointed as the Minister of Transport and Infrastructure of the Republic of Turkey on 28 March 2020. Adil Karaismailoğlu has been working for the Ministry of Transport and Infrastructure of the Republic of Turkey since 2019.

Acro Aircraft Seating Appointed Neil Cairns as the Company's Chief Executive Officer

Acro Aircraft Seating announced the appointment of Neil Cairns as the company's Chief Executive Officer effective from 9th March 2020. Neil Cairns brings has many years' aerospace seating experience, covering products in all seating classes. He has a wide-ranging track record of Lean process improvement and performance improvement, most recently holding positions as the Vice President and General Manager at Collins Aerospace based in Tucson, Arizona and Winston Salem, North Carolina based in the USA and previously running the B/E Aerospace seating facility in Kilkeel, Northern Ireland.

Upon his appointment, Neil Cairns said: "I am thrilled to have the opportunity to lead Acro at such an important time in its development. Acro has an impressive global customer base, a highly innovative range of products, a great team and inspiring company culture. Acro has grown solidly in recent years and I am looking forward to building on this success whilst ensuring that we remain focused on delivering the highest quality products and service to our customers. Despite the current challenging market conditions, I am also committed to ensuring that we continue to innovate and deliver differentiated and best in class aircraft seating products for our airline and leasing company customers."

Planet Nine ("P9PA") Expands Gulfstream Charter Fleet with Second, Managed GV

Planet Nine Private Air ("Planet 9"), the Van Nuys, California based private charter operator and aircraft management company, announced today the addition of a fourth Gulfstream business jet to its managed charter fleet. Its 6,200 nm / 13.5 flying hours Gulfstream GV (N194MF), under private ownership, takes Planet 9's Part 135 fleet to 10 aircraft. The ultra, long-range Gulfstream GV, with its flexible three-zone cabin and enclosed state-room, is currently available for bookings.


© Gulfstream

The Gulfstream V's spacious 1,812 cu ft cabin, recently retrofitted is ideal for work, rest and relaxation. It features 14 generous pale grey leather seats. Inflight entertainment can be enjoyed via eight large Ipads, holding a variety of movies. The aircraft also has a well-equipped, full-service rear galley.

"We are very pleased to be adding our second Gulfstream GV model under management," said Matt Walter, Planet 9's Cofounder and Director of Business Development. "We said at the outset when we launched the business that we were excited to be resourcing up to manage a 20-strong fleet. Today, we are well on our way to achieving this ambition, supported by a growing, loyal base of customers who have come to depend on us for safe, reliable, discreet air travel around the US, to Europe and the Middle East."

Planet 9's latest Gulfstream GV joins a sister aircraft, plus a Gulfstream G550, Gulfstream G650 and Bombardier Global 5000. Planet 9 also operates (and owns) for charter five Dassault Falcon 7Xs.

Planet Nine during the Coronavirus pandemic

"We continued to fly, repatriating families, when the airlines stopped, but right now we are operating more essential, versus luxury travel, flying doctors, healthcare professionals, scientists and diplomats. We've carried out a number of flights bringing medical professionals over to the Middle East and Europe," said Matt Walter.

"All our crew are wearing wear masks and gloves pre and post flight. Flight attendants wear both throughout the duration of the flight. We're staying up to date with guidelines from health guidelines from the world's governments and adjusting policies as necessary. Since mid-March we've been conducting temperature checks on all passengers prior to flight with non-invasive thermometers; applying additional questions regarding travel history. All our aircraft are professionally disinfected after every flight and all inflight catering is sourced from the safest restaurants and businesses which implement the safest precautions," he added. "Importantly, we are checking in with our employees, including crews twice daily, to verify everyone is healthy."


© Gulfstream

New CEO Max Kownatzki Takes Over Helm at SunExpress

April 15, 2020, Dr. Max Kownatzki officially takes over the management of SunExpress. Turkish Airlines and Lufthansa joint venture SunExpress has a strong position in tourism and ethnic traffic between Germany and Turkey and is one of Europe's most popular leisure airlines.

© SunExpress

"I am very proud to be part of SunExpress and its dedicated team" said Kownatzki and added: "Despite the harsh conditions in the entire aviation industry caused by the pandemic, we will take SunExpress further on its journey of success and strengthen its position as a leading carrier in the leisure airline market. I am convinced that SunExpress has a strong position in the market with 30 years of aviation experience, will overcome this crisis and we will soon continue its success story together."

Kownatzki added: "Since the very beginning of the coronavirus outbreak SunExpress took all necessary precautions to ensure the safety and well-being of its passengers and crews, and immediately implemented all decisions by national and international authorities to minimize both its effects and spreading. SunExpress continues to carry those affected by flight restrictions to their homes with rescue flights. SunExpress, which has been creating an air bridge between Turkey and Europe for 30 years, will continue to bring its passengers to their dream vocations and reunite them with their loved ones. The company will continue to increase its contribution to Turkish tourism and the economy."

Regarding the effects of the Covid-19 crisis on the aviation sector, Kownatzki said: "The Covid-19 pandemic, which has affected the whole world, has caused us to change our daily lives, along with individual and public measures. The impact of this on society as well as on the economy has been significant. One of the areas most affected by this situation is the aviation sector. But we believe the aviation industry will survive this crisis and even emerge from it stronger."

About Max Kownatzki

Max Kownatzki (47) has extensive experience in the airline industry, with a particular focus on strategic and commercial areas. He began his career in 2002 with the strategy consultancy Oliver Wyman in New York and Munich, where he held various executive positions until 2013 and consulted clients from the aviation industry. In 2013, he joined the management of the Australian Jetstar Group, a subsidiary of Qantas, as Chief Strategy Officer. In 2015, he joined Lufthansa, where he initially worked as Chief Commercial Officer at Eurowings Europe and in the Wings Project, where he focused on the establishment and development of Eurowings low-cost subsidiary the company. Subsequently, as Senior Vice President, he headed Business Development at Eurowings. In the past three years at the Lufthansa Group, he was responsible for network planning and strategic alliances of the hub airlines Lufthansa, Brussels, Swiss and Austrian Airlines.

Kownatzki studied business administration St. Gallen, Switzerland, and subsequently obtained his doctorate. He has both German and American citizenships and holds a commercial pilot license.

Kownatzki is married and has two kids.

SunExpress Begins Cargo-only Flights

SunExpress, a joint venture of Turkish Airlines and Lufthansa, which halted all domestic and international flights as part of the travel restrictions to fight against the Covid-19 outbreak, will begin cargo flights with 18 aircraft in its fleet.

Announcing that it will start its operations with a new type of cargo carrying model by utilizing the passenger cabin to maximize the capacity for cargo, SunExpress expects to be able to carry a maximum load of up to 21,700 kg by having to load up passengers seats and overhead bins, as well as under-aircraft cargo sections.

Stating that the airline has only carried cargo in the cargo section of the aircraft so far, SunExpress Deputy General Manager Ahmet Çalışkan said, "For the first time in our history, we are going to operate cargo-only flights. We have made a total of 18 aircraft suitable for cargo use by turning passenger cabins into cargo holds without removing seats. We completed the necessary work in a short time and will carry out our cargo flights initially from Izmir and Antalya. In the next stages, we plan to operate cargo flights from other destinations according to incoming demand."

Safety is the Top Priority on Board for Emirates

Emirates has become the first airline to conduct on-site rapid COVID-19 tests for passengers. The health and safety of our passengers and employees is of paramount importance, and will not be compromised.

Scandinavian Airlines (SAS) Working Heroes, not Only on Board, Now in Every Field of Help

Group from Scandinavian Airlines cabin crew training at Sophiahemmet in Stockholm – learning from the best how to take care of patients to relieve the hard-working heroes in healthcare.

SAS Airlines employees are being educated together with Internationella Engelska Skolan, to voluntarily work as substitute teachers in elementary schools.

Eurasia Air Show New Date Announced, 02-06 December 2020

CEO of Euroasia Air Show Hakan Kurt announced the new date of Euroasia Air Show in a video press conference held on 30 April 2020. Due to the measures taken due to the spread of Covid 19, Eurasia Airshow was postponed and now planned to be held on 02-06 December 2020 at Antalya Airport. Hakan Kurt enlightened the press members about the measures will be taken before and during the Show due to Covid19 as follows; COVID-19 Historical Analysis of Official Delegations, Thermal Camera for Exhibition Area Entrance, 10-day Micro bacterial Cleaning of the Exhibition Area with Nano Technology, 10-day Micro bacterial Cleaning of Official Delegation Vehicles with Nano Technology, 10-day Micro bacterial Cleaning of Exhibition Program Event Areas and Special Event Areas with Nano Technology, Mandatory Use of Disinfectants at Exhibition Area Entrance, Mandatory Use of Disinfectants at Exhibition Program Event Areas and Special Event Areas.

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