

Crisis management for pandemic in airlines

Seçil Ulufer Kansoy¹ and Kaan Bakanoğlu^{2*}

¹Asst. Prof., İstanbul Aydın University, İstanbul, Turkey, ORCID: <https://orcid.org/0000-0002-5522-324X>

²Commercial Pilot, İstanbul, Turkey, ORCID: <https://orcid.org/0000-0002-4506-9808>

Abstract

Aviation has become the most used mode of transportation worldwide. As a result of this great usage, it has continued to grow rapidly. A new virus pandemic, which emerged during the period when aviation was used so intensely, affected aviation deeply and negatively. As a result of the rapid spread of the virus all over the world and its transformation into a pandemic, the aviation industry has suffered a great deal of financial damage as a result of some measures taken. In this study, the problems experienced by the aviation industry since the beginning of the virus epidemic were examined and it was shown how the results were obtained in line with the measures taken.

Keywords: Crisis management, Aviation, Pandemic, Airlines, Covid-19.

1. Introduction

From past to present, people have been in a constant movement and continue to be found. With the emergence and development of aviation, people have expanded their movements to wider areas and made new discoveries. With aviation, people can reach anywhere in the world in a shorter time than other types of transportation. As a result of this speed and comfort, aviation provides a great advantage in terms of travelling. People aim to get the most from their vacations by using air transport instead of spending their limited vacation periods on the roads. For this reason, the passenger transport of countries increases considerably, especially in tourism seasons.

The number of regular flights during the year rises considerably during the tourism periods and reaches the top point, thus, both the tourism sector and the aviation sector make a profit. However, with the COVID-19 virus that emerged at the end of 2019, a pandemic was declared worldwide. With this pandemic, the whole world has closed itself and the human movement has almost stopped. With this halt, the aviation industry slowed down and even stopped at certain times. As a result of this, the number of tourists traveling between countries has decreased and the tourism sector has taken a great damage as well. The purpose of this article is to show the first effects of the COVID-19 pandemic on

world civil aviation and the first measures taken by the aviation industry against these effects. Throughout this study which the world civil aviation is scoped, first of all, what the pandemic is will be explained then the situation of civil aviation before the COVID-19 pandemic will be explained and then the effects of the COVID-19 pandemic on civil aviation will be shown and finally the measures taken in civil aviation against the COVID-19 pandemic will be shown.

2. Literature review

2.1. What is COVID-19 pandemic?

The new coronavirus (COVID-19), which emerged in China at the end of 2019, was first identified in January 2020. In Turkey, it was first seen in March 2020. Studies have shown that the most basic symptoms of COVID-19 are fever, cough and shortness of breath (Sağlık Bakanlığı, 2020). The coronavirus caused by the SARS-COV-2 virus is transmitted when an infected person comes into contact with other people. The virus is transmitted through the mouth or nose of the infected person through tiny particles of fluid that are released when they cough, sneeze, speak, sing or breathe. These small liquid particles come in different sizes, from larger 'respiratory droplets' to smaller 'aerosols'. If other people meet with infected people less than 1 meter away, they can get the disease from the mouth, nose or eyes with tiny

*Corresponding author

E-mail addresses: kaanbakanoglu@gmail.com (K. Bakanoğlu)

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water droplets from the infected person. People can also get coronavirus disease, except that they contact each other at a distance of less than 1 meter. Aerosol transmission can be occurred when infected people stay in closed, crowded and poorly ventilated spaces such as restaurants, choirs, sports halls, night clubs, offices, etc. With this aerosol transmission, the coronavirus can be transmitted to another people. On the other hand, corona virus can also be transmitted when infected people touch places such as tables, chairs, doors, handrails and then if healthy people touch these places (WHO, 2020).

2.2. Aviation sector before COVID-19 pandemic

Throughout the history of the world, people have always tried to improve themselves. During this development effort, people were inspired by birds and entered into a desire to fly and started to work in this direction. After the discovery of the buoyancy force in the years after Christ, people realized that they could do this with the help of a machine, not their own power. And as a result, the aviation sector, which started with hot air balloons, has developed up to the technology of today's aircraft (Saldıraner, 2019).

With the development of aviation technology, people have started to use airplanes as a means of transportation. Considering the data of 2019, which is before the pandemic period, a total of 4.5 billion people used airways worldwide, with an increase of 3.6% compared to 2018 (ICAO, 2020). In the year of 2019, which was before pandemic, when the data were examined, it is found that the number of the visitors from abroad to Turkey was 51.747.199 people. From this total number, it's seen that, 6.688.913 people were the citizen of Turkey and who live in abroad and 45.058.286 people who were the rest of number were foreigner. According to data, the number of citizens residing abroad who visited Turkey in 2019 increased by 0.98%, while the number of foreigners visiting Turkey in 2019 increased by 14.11% compared to 2018. When looking at the countries which foreigners came from to visit Turkey in 2019, the top 5 countries have been Bulgaria with 228,800 visitors, Germany with 191,846 visitors, Georgia with 164,020 visitors, Iran with 134,768 visitors and the Russian Federation with 130,521 visitors. Lastly, when we have a look at which transportation routes have been used by the visitors who came to Turkey in 2019, air transportation has become first type of transportation with 44,787,827 visitors, has followed by land transportation with 14,576,627 visitors, sea transportation with 1,966,254 visitors and rail transportation with 67,003 visitors. As it can be clearly seen when the relevant data are examined that air transportation has become the most preferred mode of transportation for those who visited Turkey in 2019 (TÜRSAB, 2019).

3. Methodology

In this research article, the situation of the civil aviation sector before the COVID-19 pandemic is shown, then the effects of the COVID-19 pandemic on civil aviation and the

measures taken against the pandemic are shown by examining the statements and reports of the authorities and airlines. The scope of the study is the world civil aviation sector details with Turkish Civil Aviation. Qualitative and quantitative data were examined in this study, which was carried out with the descriptive research model. In the qualitative research, the decisions taken by the authorities and the measures taken against these decisions were shown. In the quantitative research, the data in the reports published by the airlines and authorities about the damages caused by the pandemic were analyzed. In these days, when the effects of the pandemic are just beginning to emerge, research has been carried out with these two methods in order to show both the measures taken by the authorities and the damage experienced in the face of the pandemic. The results were obtained by analyzing the financial reports and statements published by the authorities and airlines. With this study, the first effects of the COVID-19 pandemic on the world civil aviation industry were shown. With this study, in which the first effects of the pandemic are shown, it is thought that when the pandemic is over, it will guide the future studies that will show the damages of the pandemic to world civil aviation sector.

4. Findings

4.1. Impacts of COVID-19 on aviation sector

The new coronavirus (COVID-19), has adversely affected all world markets except human health. With the global coronavirus pandemic, a huge economic crisis has started around the world. The aviation industry has become one of the most affected markets in the world. As the COVID-19 pandemic has reached global dimensions, human movement has started to decrease, and naturally, the aviation sector was badly affected by this situation. Looking at the relationship between COVID-19 and civil aviation, it can be said that aviation helps in the spread of the coronavirus. The reason for this is that aviation is used by all people as it is an easy and fast form of transportation. The aviation industry, which is shown as one of the reasons for the spread of the virus, was seen by people with fear, and a decrease in passenger demands was observed. In addition, the industry has been badly affected by flight restrictions imposed by governments (Akça, 2020).

The first measure implemented in the aviation industry due to the virus was against flights from China. In line with the decision, all flights departing from China were suspended. After the Chinese ban, as the virus was seen gradually in other countries, flights stopped in countries where the virus was seen, and the aviation industry was deeply wounded. Due to the COVID-19 pandemic that affected the world, a serious decrease was experienced in the aviation industry, as in all sectors of the world. With this decline, airline companies both lost the number of passengers and experienced serious financial difficulties. As a result of the measures taken against coronavirus, either flights around the world have been restricted or completely banned. As a result

of these measures, the number of flights and passengers of the airline companies has decreased significantly. The aviation sector, which started to recover again with the reduction of the effect of the virus a little, started to decline with the increase of the virus again with the winter period (Armağan and Deniz, 2020).

When the total air traffic data has analyzed for 2019, the year before the pandemic, published by the General Directorate of State Airport Authority in Turkey, it has seen that a total of 2.033.430 flights have taken place in 2019. In 2020, when the pandemic has spread rapidly around the world, the total number of aircraft traffic has decreased by 48% to 1,057,247. On the other hand, analyzing the domestic and international passenger traffic data published by the same institution, it has seen that the total number of passenger traffic was 208,911,338 people in 2019, while this number decreased by 60.9% in 2020 to 81,657,070 people (DHMI, 2020). According to the data of EUROCONTROL, which is responsible for European air traffic, as of January 2020, there has been an extreme decrease in flights. From January, when the pandemic first appeared, there was a 1% decrease in February 2020. However, with the rapid spread of the pandemic, this decrease reached 41% in March 2020. In April 2020, when the pandemic had its effects all over the world, the decline reached its highest level of 88%. After these decreases, a slow recovery was experienced with the summer period and an increase in flights was observed until August 2020. However, despite this increase, the flight rate is 51% lower according to January 2020 data. According to the latest data from November 2020, the number of flights has decreased by 60% compared to January 2020 (EUROCONTROL, 2020).

According to the financial report which announced by Turkish Airlines, Turkish Airlines has lost a total of 5 Billion 588 Million TL in 2020 (THY, 2021). On the other hand, according to financial report which announced by Pegasus Airlines, Pegasus Airlines has lost a total of 1 Billion 965 Million TL in 2020 (Pegasus, 2021). According to the report which announced by International Civil Aviation Authority, the total loss of airlines around world is approximately 371 Billion USD (ICAO, 2021).

While the pandemic affected aviation negatively, it had a positive impact on air cargo transportation. With the closure of the whole world, passenger transportation has stopped, while the air cargo transportation has accelerated. Since air cargo transportation was not preferred much before the pandemic, airlines went to shrink in terms of cargo transportation. However, with the pandemic, air cargo transportation has grown rapidly. Before the pandemic, cargo typically made up around 12 percent of the sector's total revenue; that percentage tripled with pandemic (Bouwer et. all, 2021). When we examine air cargo transportation specifically for Turkish Cargo, Turkish Cargo continued its activities by taking various measures in this direction, according to the demand of cargo transportation with the pandemic. Turkish Cargo, which had a revenue share of 4.2% in 2019,

increased its revenue share to 5.1% in 2020. In addition, Turkish Cargo, which closed 2019 with a turnover of 1.72 billion dollars, increased its turnover by 61% in 2020 and achieved turnover of 2.7 billion dollars (THY, 2020).

4.2. Crisis management for pandemic

With the spread of the coronavirus, the whole world had started to stop its flights with China. After this stop, the countries had made an evacuation flight to save their citizens who remained in China and had started to quarantine their citizens by taking them to their countries. With these quarantine studies, countries have tried to protect themselves from the coronavirus epidemic. However, after a while, coronavirus started to be seen in all countries and the countries have gone to complete closure. With the complete closure, all flights were banned and airlines have grounded all their planes. During this period, only cargo flights were made and evacuation flights were made again when needed. In line with the statement made by EUROCONTROL, it can be seen that how much flights have decreased all over the world.

After the coronavirus affected the whole world, vaccine mobilization had started all over the world and all countries had tried to find a vaccine for the corona virus. There are 75 different vaccine studies that have been tested on humans all over the world. These vaccine studies are divided into various classes according to the test processes. These classes consist of "Preclinical testing, Phase 1 Safety Trials, Phase 2 Expanded Trials, Phase 3 Efficacy Trials, Early or Limited Approval, Approval, Combined Phase and Paused / Abandoned" classes. There are 12 vaccines which in the 2nd and 3rd phase among the vaccine studies carried out all over the world and 6 of these 12 vaccines have been started to be used as "early limited use" and the other 6 have been started to be used as "approved full use" against coronavirus (NY TIMES, 2021). According to the estimates of EUROCONTROL, if the vaccine is realized in 2021, recovery is expected by reaching 73% in 2021, 89% in 2022, 86% in 2023 and 103% in 2024. However, if the vaccine is found in 2022 instead of 2021, it is shown that this recovery process will be slower. In line with the estimation made, it is shown that if the vaccine is administered in 2022, it will only reach 92% in 2024 compared to 2019. However, if the vaccinations are not successful, it is predicted that it will only reach 75% in 2024 (EUROCONTROL, 2020).

In the face of this pandemic, some measures have been taken by the airline companies in Turkey in terms of passenger comfort and travel safety, in line with the measures of aviation authorities and health institutions. These; Online check-in to minimize contact at the airport, take only cabin luggage with personal belongings to avoid unnecessary luggage in the aircraft cabin, wearing a mask, non-contact check-in or boarding at the airport, special after each flight A number of measures have been taken, such as cleaning with cleaners, constantly cleaning the in-flight air with

HEPA filters, distributing hygiene sets during the flight and obtaining HES code before the flight (THY, 2020).

Measures against the COVID-19 outbreak have also been taken by authorities other than airline companies. According to the measures taken by the General Directorate of Civil Aviation, the exams to be made by the General Directorate were canceled, educational activities were stopped, and flights to certain countries were stopped in line with the recommendations given by the scientific board (SHGM, 2020).

5. Conclusion

Towards the end of 2019, the whole world was shocked by the news of the COVID-19 outbreak from China. Almost everyone living in today's world has begun to experience pandemic stories in today's world that have only read from history books. This new virus, which was ignored at first and only seen in China, has started to spread rapidly all over the world. Since the necessary precautions were not taken at first and people were behaving comfortably, this new virus has spread and affected the whole world rapidly. As a result of this spread, humanity has started to face enormous problems in terms of both health and financial.

After COVID-19 has gotten out of control and spread around the world, health mobilization has officially declared all over the world. And as a result of this mobilization, a pandemic has been officially declared. As a result of the announced pandemic, the whole world has started to take the necessary measures rapidly. First of all, although only the countries where COVID-19 cases are seen have taken precautions, gradually all countries of the world have started to take the necessary precautions against COVID-19. With the start of taking measures around the world, China has cut its connections with the whole world in the first place and stopped all flights. With China ceasing its flights, other countries have gradually decided to restrict flights with other countries. In cases where restrictions were not sufficient, all flights were stopped completely and countries have been isolated themselves from other countries.

With these flight bans, the aviation industry has officially stopped. This great crisis experienced by the aviation industry has also greatly affected the airline companies financially. In the beginning of the pandemic, the airline companies have made evacuation flights only for citizens who has stuck in other countries to return safely to their own countries. After these evacuation flights, cargo flights have started to continue gradually. However, almost all planes of the airline companies have been grounded, as the transportation of people has almost completely stopped. As a result of this crisis, airline companies, which could not generate any income, have made necessary assistance requests to protect themselves.

Serious efforts have been started around the world in order to get rid of this pandemic in the world. Almost all countries of the world have started studies for finding the

COVID-19 vaccine. However, the world was not expected to return to its former state in the near future, as vaccination studies cannot be concluded immediately and naturally it will take serious time. As of today, there are certain levels and accepted vaccines for COVID-19 around the world. Countries have wanted to quickly administer these vaccines to their citizens and wanted to get rid of the COVID-19 pandemic as soon as possible and return to normal. Along with the vaccination studies, normalization studies, which are called new normal, have been started all over the world.

Although COVID-19 vaccination has started worldwide as of December 13, 2020, the vaccine has not reached all people today. Considering the vaccine data applied worldwide, it is seen that, as April 1 2021, 596 million people have been vaccinated all over the world. Considering the world population, the number of people vaccinated so far accounts for approximately 7.8% of the world. Although this rate will progress gradually, vaccines reach some countries but not so quickly to the others. For example, while Israel has administered the vaccine to all its citizens, when we look at African countries, it is seen that the vaccine has reached them very little amount yet. For this reason, although some countries have vaccinated all of their citizens, it is thought that it will take a little longer to wait for the COVID-19 vaccine to be fully implemented all over the world, as other countries have not yet completed the vaccination. Considering the consequences of this worldwide pandemic and the speed of vaccination, people should also pay attention to their daily lives. If this epidemic is to end and the sectors are to be improved, all humanity should also take care of their own health (NY Times, 2021).

With the new normal that will be obtained as a result of this vaccination, the whole world is expected to gradually return to its old state. After the year 2019, when the pandemic first broke out, the aviation industry has suddenly turned upside down. As a result of the estimations made, it is shown that the aviation sector will recover rapidly once the pandemic period is over or a vaccine is available. However, it is expected that this recovery period will be much longer if there is no vaccine or if the vaccine does not work. With the recovery of the aviation sector, it is expected that people who are not sitting or stuck in a certain area will start to travel, and as a result, there will be heavy human traffic around the world.

Although the aviation sector, like many other sectors, has been negatively affected by the COVID-19 pandemic, we should know that this situation is temporary. Due to this negative process, the sector has suffered financial losses. However, airlines with strategic management and strategic planning managed to survive with minimal losses. Instead of laying off its staff, airlines that successfully managed this process reduced their financial expenses and deducted staff salaries and other expenses. Thus, both the rights of the company and the rights of the employees are protected. Being prepared for crisis situations such as pandemic processes that have happened differently in previous years and having

good crisis management has come to the forefront here. The COVID-19 process, which has been going on for about a year, will also end with solutions that develop and are implemented over time. After COVID-19 is over, the aviation sector will continue to work quickly from where it left off and will cover the damage suffered during this time.

To conclude in general terms, the aviation industry, which turned upside down with the pandemic, will quickly return to its former state after the pandemic and will get rid of this crisis and reach old good days again. With the return of the old days, a rapid recovery is expected in all sectors. As a result of this rapid recovery, it is expected that the economic problems, experienced with the pandemic, will be overcome.

6. Future researches

After the COVID-19 pandemic has started to spread around the world, the whole world has been adversely affected. Research which has made as a result of this influence has shown that how it affects from the pandemic in today's conditions. The study conducted under these conditions is also the data obtained as a result of today's conditions. However, the COVID-19 pandemic will be surely ended one day. With the new studies to be done after the end of the COVID-19 pandemic, it will be better understood that how the COVID-19 pandemic has influenced negatively the whole world. According to this situation, as a result of this study, we have shown that how the COVID-19 pandemic affected the aviation industry in today's conditions. However, for more accurate and definite results, studies to be done after the pandemic is over will be more accurate. In this direction, after the pandemic is over, a study can be carried out on how the aviation sector is affected by the pandemic and more accurate results can be obtained.

Author contribution statements

S. Ulufer Kansoy and K. Bakanoğlu contributed equally to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript.

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All responsibility belongs to the researchers. All parties were involved in the research of their own free will.

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