

# Analyzing the Aviation Industry based on Impact of COVID-19 using HR Strategic Management Practices: A Case Study

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**Abstract**— One of the most significant case studies in the world market is the analysis of the strategic management techniques in aviation industry with COVID-19 crisis. Currently, the global community has been affected severely with the Coronavirus pandemic COVID-19. Aviation is one of the industries that has been hardest hit. A strategic management approach used in this study to investigate how COVID-19 challenged this sector. The airline sector operates in a very cutthroat environment. Its target market includes people from all over the country and the world with a variety of specialties. For the management to examine the decision-making process and stabilize the uncertain conditions brought on by the environment, strategic management practices are of utmost importance. Analysis of the economic and administrative repercussions of Covid-19, which disrupted travel plans and altered budget projections, has assumed a crucial role. By implementing conventional business procedures, strategic management makes a significant contribution to addressing the challenge. The paper highlights the best management approaches, which unquestionably address the crises and support the aviation industry and compares them to analogous prior crises.

**Keywords**— Analysis, COVID-19, Aviation Industry, Strategic Management, Practices.

## I. INTRODUCTION

A company's strategic management involves continuous planning, monitoring, analyzing, and assessing all requirements required to accomplish its goals and objectives [1]. Changing business conditions will require organizations to continually evaluate their success methods. As part of the strategic management process, businesses are able to take stock of their current situation, prepare and implement management plans, and assess the results of their efforts [2]. A strategic management approach consists of five fundamental tactics, and their implementation will differ depending on the situation [3].

Managing mobile platforms as well as on-site platforms requires a strategic approach. Natural disasters and changes in several tourist-heavy nations across the world have a significant impact on the flow of tourists[4]. In the same way, sudden financial crises sharply cut back on mobility because it has a big impact on international tourism [5]. Terrorist incidents in many parts of the world at various times also had a significant impact on the tourism sector [6]. In addition to ecological, economic, and security factors, global health concerns had an impact on tourism. Health illnesses like Sars, H1N1, and Mers have a significant economic impact that has impacted the tourism industry, according to study [7]. Another health threat that the globe is currently dealing with is COVID-19 [8]. It is allegedly a highly contagious respiratory ailment brought on by a coronavirus. The virus has reportedly spread at frightening rates to more than a hundred nations, according to study. The study also demonstrates that older travelers are more erratic under pressure.

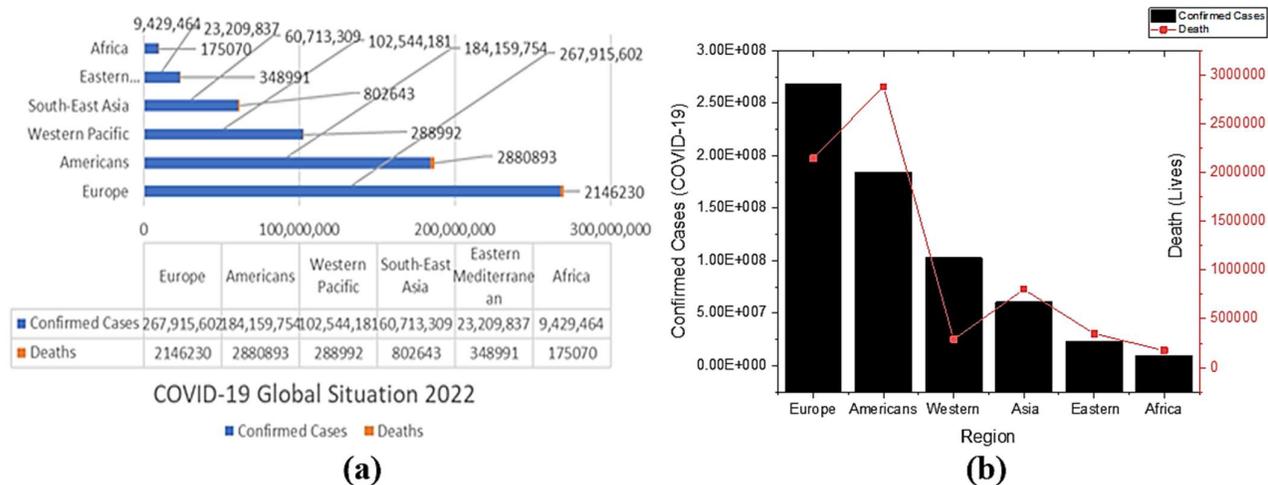
Both human lives and the economy are being severely impacted by the COVID-19 pandemic. A recent study found that Covid-19 spread both locally and nationally [9]. According to a report by the World Travel and Tourism Council, this crisis will have a significantly bigger impact than the global financial crisis [10]. It has been determined that those workers who do informal work will be most impacted by the business' collapse. As the COVID-19 spread around the globe, strict regulatory measures and public health care systems were put in place. To resolve the difficulties, the travel industry must implement several activities. Strategic management plays a critical function in this context. According to certain reports, the Covid-19 pandemic has had a significant socioeconomic impact on the entire world [11], [12].

Today's corporate community is familiar with the idea of strategy. Large corporations first used this concept, which is today employed by organizations like non-profits and the arts. The organization uses the approach frequently since it results in effective strategic management. It is an undeniable fact that

firms operating today are required to take the necessary actions to deal with the issues. Initiated by one business, strategic management quickly spread to other industries, particularly the airline sector, which needs a number of strategies specifically created for it. The fact that strategy is a coherent method of planning to take advantage of opportunities and threats in the environment explains why it is of utmost importance [13]. COVID-19 is currently posing a danger to this sector. Such a strategy should be developed by strategic management to help the aviation sector get through this difficult time.

The Covid-19 has an impact on the socioeconomic fabric, families, and individuals and other sectors [14]–[20]. The severity of the COVID-19 has demonstrated that the pandemic is the biggest health emergency the globe has ever experienced following World War [13]. It strains nations and has the

potential to deteriorate society's social, economic, and political fabric. The most at-risk sector is the tourism and hospitality sector, whose shutdown would affect millions of employments globally. For instance, Covid-19's effects on the travel sector reduce the world GDP by 10%. Considering the foregoing, the purpose of the study is to present a detailed analysis of how COVID-19 impacts the livelihood and income of both employees and other stakeholders in the travel sector. The conversation also covers how the pandemic impacts the world economy and what tactical measures should be taken to combat the pandemic's effects. Figure 1 (a-b) shows that spread of COVID over the world region Source: WHO (2022d) Coronavirus Disease (COVID-19) [21].



**Figure 1.** (a) Spread of Covid-19 based on Global Region, (b) Confirmed Cases VS Death Wave

## II. MAJOR IMPACT OF THE COVID-19 PANDEMIC ON AVIATION INDUSTRY

A sustainable business model is a major concern for airline operators. Air industry is a small but important part of the economy for any country. The airline industry had a face huge business crisis during the COVID period. The major impact of the COVID-19 imposed the aviation industry to temporary travels restrictions with pandemic SOPs based on COVID situation. This way air industry got the huge loss of the profits and also burden of high expense which increased the passenger tickets price. The primary COVID-19 effect was to force the airline sector to implement pandemic SOPs that temporarily restricted travel based on COVID circumstances. This caused a significant loss of income for the business and put a heavy weight on fuel prices. IATA reports that in April 2020, passenger air travel as measured by revenue passenger kilometers was down 90% from the previous year, and it was still down 75% in August. Freight was approximately 30% lower year-over-year in April and remained roughly 12 percent lower in August as a result of the decline in economic activity

and commerce. There also some of impacts following the below points [22].

- Although it accounts for a minor portion of GDP but facing huge loss of air industry economy, business and employment job loss during COVID-19 period.
- There has been a dramatic decrease in demand for passenger air travel as a result of the COVID-19 epidemic and containment efforts. Several jobs have been threatened by the air transportation sector and the rest of the aviation industry.
- Although government policies have frequently targeted the aviation sector to retain the business due to COVID and must be compile the proper and certain procedures in safety and health for passenger.

Figure 2 shows the impact performance last two years based on COVID-19 reasons. The COVID-19 pandemic epidemic, which started in 2019, is still going strong and continues to threaten both the world economy and public health. It has hampered company activities across all sectors. The aviation sector is one

of the significant contributors to the expansion of the world economy that was impacted by COVID-19. By generating a total

of 65.6 million employment worldwide in aviation-related industries across various job kinds, the aviation industry has

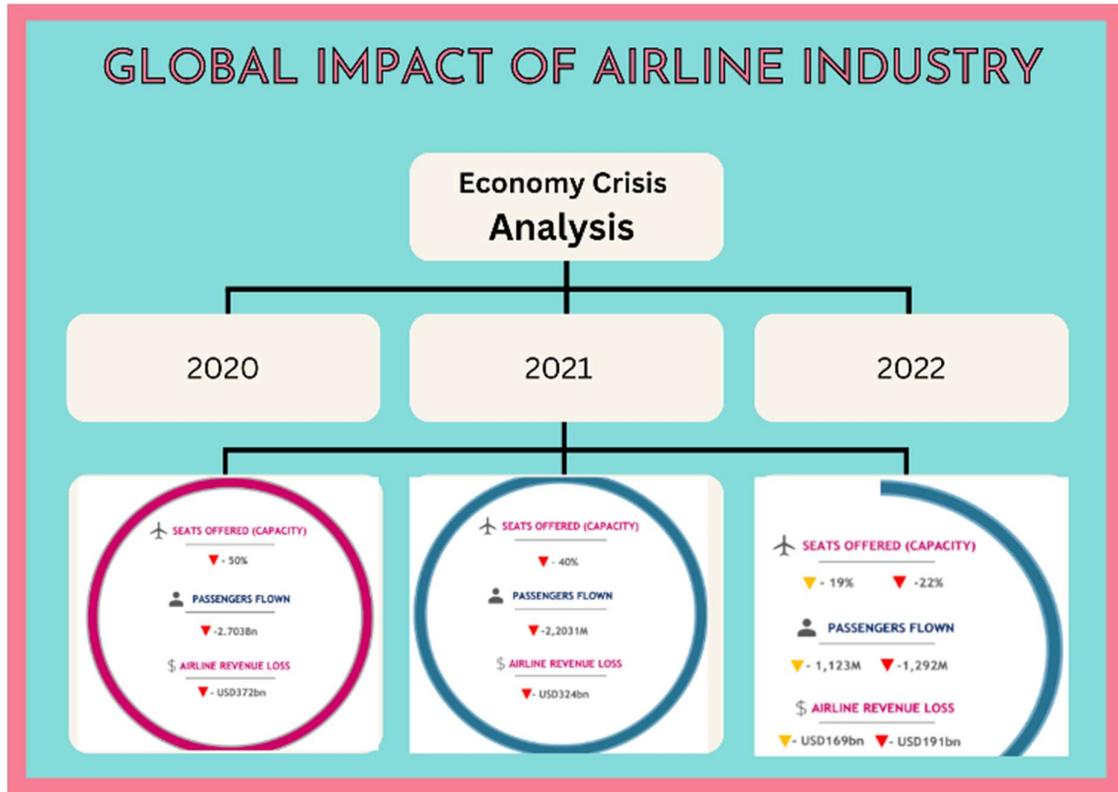


Figure 2. Analysis of Gblobal Impact of Airline

contributed to 3.6 percent of the global GDP. Direct jobs include those held by air traffic controllers, airport operators, airlines, and providers of air navigation services, while indirect jobs include those held by construction firms, fuel service providers suppliers to original equipment manufacturers, and a number of other businesses. About 36.7 million of these 65.6 million employments are associated with the tourist sector, which is heavily dependent on-air travel.

### III. LITERATURE AND REVIEW STUDY

Before process of rearranging the essential tools and resources, scheduling the activities, directing the operations, and creating a competitive edge to establish goals that are compatible with shifting environmental conditions is referred to as the strategy. The assumption is that an organization's capacity to operate in a highly competitive environment and gain benefits over time will determine whether it succeeds or fails. The study backed up strategic management practices in the field that increase an organization's competitive advantage through special services. Organizations must employ the most appropriate methods to acquire a competitive advantage and maintain profitability [23-24]. Different corporate settings call for different strategic management techniques. In order to make

decisions, the firm should also employ a variety of strategic management techniques. Some of the most well-known tools for financial analysis include strategic planning, balance scorecards, SWOT analyses, and total quality management [25]. The assignment's connection to the pandemic crises, which had a significant impact on the aviation business, is noteworthy. The underlying material revealed how this sector handled these crises by utilizing strategic management techniques.

#### A. Benefits of Strategic Management Practices in Aviation Industry

It is generally recognized that strategic management in the aviation industry has both financial and non-financial benefits. As part of its role as a board of directors, the board is responsible for taking part in the strategic management process, which assists the organization in planning for the future. By utilizing strategic management practices, aviation organizations and their employees can achieve their objectives. The process of strategic management is the process by which an organization's activities such as market share, income and profitability are continuously prepared, monitored, and tested, as opposed to preparing static strategic plans. Nevertheless, strategic management requires an organization to have a clear understanding of its agenda in future format, and the fundamental rules that will guide its operations.

It is a prerequisite for the process of strategic planning that an organization is able to set both intermediate and long-term goals. In the aviation industry, strategic planning encompasses both short- and long-term goals. The Aviation industry strategic The

### B. HRM in Aviation Industry

An important part of the aviation industry is the provision of a fun and pleasant means of transportation for its clients, so the employment of people in this field is of paramount importance. Even though economic fluctuations have been observed to have adversely affected the aviation industry's workforce, workers in the airline sector have been protected from exploitation by management and airline companies due to the presence of a strong labour union framework. The purpose of this study was to analyze the labour relations in the aviation industry and the obligations that unions have to protect the interests of both employees and non-employees. Based on secondary research, the United States has the strongest and most durable labor union in the world's aviation industry. They may seek assistance from the union in putting initiatives intended to improve profitability and the efficiency of the business into practice. Employees in this industry feel protected, and management is able to regulate and monitor the activities of the employees easily.

Employment in the aviation business is of utmost importance since it plays a crucial role in the provision of a joyful and enjoyable mode of transportation for its customers. Although it has been noted that economic changes have had a negative impact on the workforce in the aviation business, employees in the airline sector have been safeguarded against exploitation by management and airline corporations thanks to the existence of a robust labour union system. This study aimed to examine the labour relations in the aviation sector and the duties that unions have to safeguard the interests of both employees and non-employees. According to secondary research, the US aviation industry has the most robust and long-lasting labour union. They may ask the union for help in implementing initiatives meant to increase the company's profitability and efficiency. In this sector, workers feel protected, and management can easily control and keep an eye on their activities.

### IV. METHODOLOGY STRATEGY

Majority of the material for the study, which is based on a qualitative research model, was obtained from secondary sources. Publications on a national and worldwide scale, business papers, and conference proceedings were used to gather the data. The data was obtained from well-known internet database sources in order to prove its credibility. Interviewing people from related industries served as another method of consulting the primary source. The information was used to create a study strategy on the application of strategic management techniques during emergencies like the pandemic era. In-depth research was conducted to identify the current tactics in order to provide some advice. There are various restrictions on the existing data's accessibility, and the research is not exhaustive [25].

It is crucial to have a thorough awareness of the context of the organizational environment in order to perform strategic management. Identification of external environment

Aviation industry strategic planning includes the planning of strategic actions approach, decisions making in order to get the objectives

opportunities and threats is essential. They must simultaneously determine the tools and resources needed to accomplish the goals. When creating a plan, a series of questions are posed, and the business must provide a solution. To comprehend and identify the change made to the external environment, models such as SWOT analysis, Porter's five forces, and macro environmental analysis may be employed. Although corporations utilize tools and tactics to gain a competitive advantage, the organization must be ready to handle the crisis phase [26]. One method is the turnaround plan, which transforms the circumstance into a business opportunity. The following strategies are crucial in this regard [27].

- To form alliances in order to trade resources.
- Concentrate on market sectors that can generate sufficient profitability
- Reduce operational expenses.

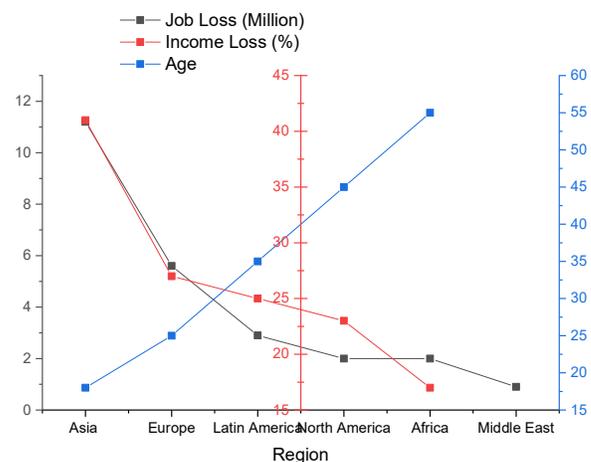


Figure 3. Job loss, Income by Age and Region during COVID-19.

Understanding how the aviation sector responded to previous global crises is crucial. The world's economy experienced a severe recession in 2007, and tourism was one of the industry's most heavily impacted (GFC). Nevertheless, there were global attempts made to get past that period. The sector has mostly concentrated on improving services provided, facilities, and consumer happiness. It was discovered that individuals all around the world stopped wanting to travel because of the global financial difficulties. Despite the fact that globally government policies commonly target the aviation industry to keep the business and need to compile adequate job market [23].

When Swine flu (H1N1) first emerged in 2009, the world was experiencing a severe economic crisis. Global tourism was expected to be impacted, however the study found that promptness and effective strategic management helped to

mitigate the effects. Although this financial crisis was a difficult blow for various other industries globally, the airline industry quickly rebounded. The airline sector needs to develop a plan that ensures consumer safety in light of the 2006 SARS pandemic. Undoubtedly, the situation has changed significantly from the Covid-19 outbreaks in the past. The aviation sector must operate as an open system that adapts to and reflects changes in its surroundings. As a result, the airline operator is limited in the choices they may make. Lockdown can only be accomplished in one direction. Even if a location is not under lockdown and flights are operating at a minimum level, the bulk of tourists are unwilling to take chances.

Travel restrictions are thought to apply to 96% of popular tourist locations globally [30]. Whatever its strategy, the airline sector must endure significant losses, which implies it must cut costs by reducing salaries or eliminating positions. By following the laws and regulations set forth by the government, crises in the past have been resolved. Governments started securing cash packages or creating national advertising campaigns to market the nation. This paper seeks to identify the best method for overcoming the Covid -19 phase.

#### V. MANAGEMENT STRATEGIES: DISCUSSION AND SUGGESTED STRATEGIES

The goal of this paper is to offer some solutions to this industry's particular challenge. Since there isn't enough current research concentrating on this subject, the authority has attempted to few different ways.

- Support for a safe umbrella with one-window operation
- The application of innovation and technology apply
- The satisfaction of the customer's needs
- To utilize and improve the online awareness among the people
- Deployed CSR Activities

By assuring the safety of their potential customers, this industry's top priority is to intrigue and engage their audience. The commuters look for a high-rating, well-being-safe means of transportation. It implies that maintaining travel safety from COVID-19 will be the competitive advantage rather than differentiation and cost leadership. This enterprise must be run under the guise of "safe umbrella travel." The goal of this is to put any potential customers at rest and guarantee their safety and security. The industry will persuade their customers about the safety of travelling by utilizing public relations strategies, and if it is presented effectively, trust can be derived. Digital media should be used to effectively advise this umbrella, reassuring the customer that safety and preventative steps are being taken. Technology exploitation is yet another tactical move. To maintain the business, the airline sector needs to revisit its technology and reassess its business plan. It should be assessed whether or not technology can help the business grow.

Technology is firmly believed to deliver new solutions and maximize enjoyable travel experiences. At the airport, a smart kiosk (Id scanning and facial identification) can be deployed to prevent unauthorized touching of potentially contaminated surfaces. Airports may be creative by utilizing chatbots to handle the many inquiries from customers and provide them with the information they require. A virtual display of fundamental airport amenities and services might be produced by the digital solution. Additionally, special attention should be paid to the surrounding air quality; as a result, investments must be made to provide air filtration and prevent aerosol transmission. Potential customers are another crucial factor the airline sector needs to consider. The majority of passengers are unsure about how to travel during the pandemic. While some customers are prepared to travel, the majority of consumers are cancelling their reservations or asking for refunds. Airlines have the chance to grow their client base and increase loyalty. Customers must be provided options to modify their confirmed reservations. One of the choices may be to reschedule their reservation, but if the consumer is unwilling to do so, the industry may fully refund them.

If the industry can earn the trust of its customers, they will continue to use it in the future. It is crucial to realize that the airline industry should place more of an emphasis on domestic travel in order to make up for lost revenue and give domestic travelers the best possible amenities. According to the survey, the majority of governments have been attempting to take extraordinary efforts to combat Covid-19 cases. In order to relieve the consumer and the airline business, the industry should take into account the financial cushions. Several actions are being taken by the government to secure the survival of the industry. Some of the actions done by the various governments include tax breaks, economic aid packages, grants, loans, and publicity campaigns. The sector should, however, also take a second look at some other costs, such as marketing salaries. Making certain changes to lessen the impact on the budget is quite important. Making a plan for how to handle reservation cancellations is also necessary. It's crucial to run with larger profit margins and have some emergency cash on hand to handle such a catastrophe. So far, governmental assistance has helped the airlines cope with the decreases in demand. Due to a low profit margin, many airlines in the past were compelled to file for bankruptcy as a result of flight cancellations following the 9/11 terrorist attack in the United States. Even when they are about to close or have a small number of reservations, the sector will benefit from this strategic tool because it will allow them to operate for several months [31].

It's essential to operate with higher profit margins and to have some extra cash on hand in case of an emergency. Government support has so far enabled airlines to adapt to a drop in demand. Many airlines in the past were forced to declare bankruptcy as a result of flight cancellations after the 9/11 terrorist attack in the United States due to low business margins. The industry will profit from this tactical tool because it will enable them to continue operating for several months, even when they are about to close or have a limited number of bookings.

## VI. AIRLINES RETURN TO PROFITABILITY

According to IATA's \$9.7 billion loss reported in 2022 and air industry now have a loss of \$6.9 billion. There were losses of \$42.0 billion in 2021 and \$137.7 billion in 2020 respectively. It is expected that passenger yields will increase by 8.4% in 2022 as compared to the 2021. As a result of this progress, it is also expected that passenger revenue will increase to \$438 billion by 2022. Revenues from air cargo were estimated to be \$201.4 billion, which is crucial for reducing losses. Furthermore, it is approximately the same as in 2021 and more than quadruples the \$100.8 billion earned in 2019. A 43.6 percent increase in total revenues is predicted for 2022, or \$727 billion [32].

In addition to a reduction in GDP growth projections (from 3.4 percent in June to 2.9 percent) and the prolonged suspension of COVID-19 restrictions in most markets, particularly China, most other factors have changed negatively. In spite of this, it appears that the industry will only be able to recover 70.6 percent of its pre-crisis demand. As per the IATA's June predictions, passenger traffic in 2022 was expected to reach 82.4 percent of its pre-crisis level. It was predicted that the level of cargo would exceed that of 2019 by 11.7%; however, that prediction has now been revised downwards to 98.4% of the level of 2019 [32]. Figure 4 shows the airline industry profit and loss scenario.

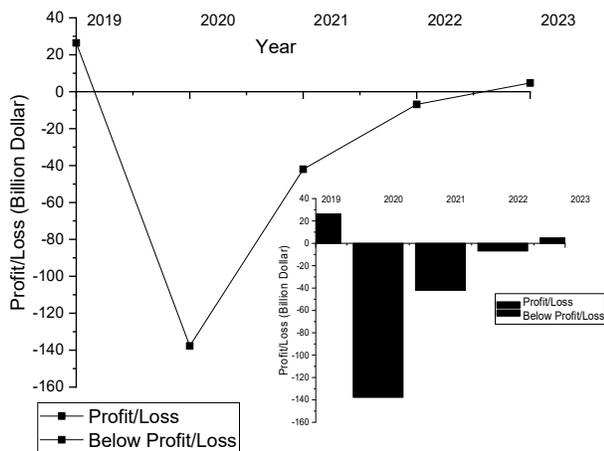


Figure 4. Airline Profit/Loss Scenario between 2019-20203 During COVID-19.

According to the most recent forecast, jet kerosene prices are expected to average \$138.8 per barrel for the entire year, representing a significant increase from the \$125.5 per barrel expected in June. As a result, oil prices have increased, which is made worse by a jet crack spread that is considerably greater than historical averages. Despite lower demand, the industry's fuel bill increased to \$222 billion (a significant increase over \$192 billion predicted in June). As a result of rising expenses, labour shortages, strikes, operational disruptions at several key hubs, and mounting economic instability, airlines managed to reduce their losses in 2022. It is evident from this statistic how much people desire and need connectivity.

In 2023, the airline industry is expected to reach profitability. Global airline revenues are expected to exceed \$779 billion, resulting in a net profit of \$4.7 billion (0.6% net margin). As global GDP growth slows to 1.3% (from 2.9% in 2022), this expected improvement is occurring despite growing economic uncertainty. Although there are a number of economic uncertainties in 2023, there are a number of reasons to be optimistic. While the strong growth trend continues, low oil price inflation and pent-up demand should help to keep costs in check. However, with such thin margins, even a small shift in any one of these variables can cause the balance to shift in a negative direction. Figure 5 shows that the airline industry had started its business crisis in 2020 with -84.3 Bn USD. In 2023, it is expected that the airline sector will become profitable. The airlines are projected to make \$4.7 billion in net profit on revenues of \$779 billion (0.6% net margin). There will be an improvement in the economic outlook (from 2.9 percent in 2022) despite heightened economic uncertainty and a slowdown in global GDP growth [33].

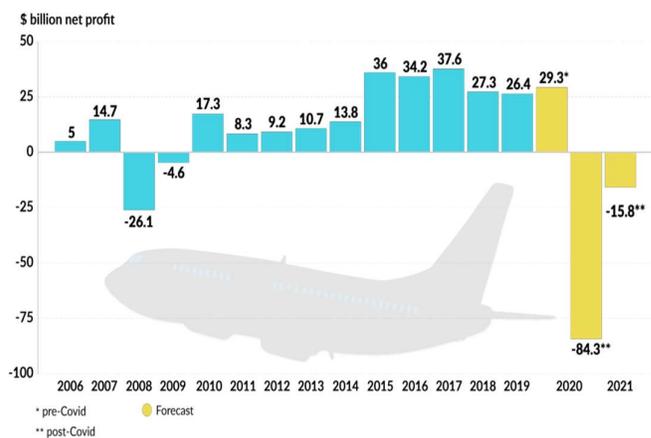


Figure 5. Airline Bankrupt started in 2020 (Source: macpixxel for GIS).

## CONCLUSION

Analyzing the impact of COVID-19 on the aviation industry using strategic management practices is one of the most major and vital case studies in global aviation market. This paper emphasized the use of strategic techniques and equipment to support the airline sector in times of need. The demand for airplane services has significantly decreased as a result of the pandemic phase. It suggests reevaluating the strategic techniques and methods. The airline sector needs to prioritize a number of strategic issues, including passenger safety, building strong customer relationships, adaptability to new technology, and establishing some financial breathing room to recover from this crisis and even to get ready for another pandemic wave. The industry is advised to look into those successful cases that recovered from Covid-19 in order to find the best course of action. Additionally, empirical data is quite important for bolstering strategic management methods. The tourism sector is extremely resilient and exceptional in overcoming various dangers. The reparative efforts implemented today will create more prosperous tourism in the future. An airline is a crucial

component of any tourism sector. Future opportunities should be considered for this pandemic.

#### CONFLICT OF INTEREST

There is no conflict of interest from authors.

#### REFERENCES

- [1] C.S. Clark and S.E. Krentz, "Avoiding the Pitfalls of Strategic Planning," *Healthcare Financial Management*, 60, no. 11 (2004): 63–68.
- [1] J.S. Bruner, *The Process of Education: A Landmark in Education Theory*, (hyperlink no longer accessible). (Boston: Harvard University Press, 1977).
- [2] J.A. Pearce and R.B. Robinson, *Formulation, Implementation, and Control of Competitive Strategy*, (New York: Irwin McGraw-Hill, 2000).
- [3] Ryan, C. (2003). *Recreational tourism: Demand and impacts*. Channel View Publications.
- [4] Mather, S., Viner, D., & Todd, G. (2005). Climate and policy changes: Their implications for international tourism flows. In C. M. Hall, & J. Higham, *Tourism, recreation and climate change* (pp. 63-85). Channel View Publications, Clevedon.
- [5] Page, S., & Connell, J. (2006). *Tourism a modern synthesis*. Thomson, Cengage Learning EMEA .
- [6] Mason, P., Grabowski, P., & Du, W. (2005). Severe acute respiratory syndrome, tourism and the media. *International Journal of Tourism Research*, 7 (1), 11-21.
- [7] Effects of novel coronavirus (Covid - 19) on Civil Aviation: Economic Impact Analysis - ICAO. (n.d.). Retrieved December 6, 2021, from <https://www.icao.int/sustainability/Documents/COVID19/ICAO%20COVID%202021%2001%2027%20Economic%20Impact%20TH.pdf>.
- [8] Keni R, Alexander A, Nayak PG, Mudgal J and Nandakumar K (2020) COVID-19: Emergence, Spread, Possible Treatments, and Global Burden. *Front. Public Health* 8:216. doi: 10.3389/fpubh.2020.00216.
- [9] World Travel and Tourism Council. (2020). What is the future of travel and tourism after COVID- 19? Financial Times Global Economic Crisis – What Now? Global Digital Conference 12-14 May, 2020.
- [10] Girum, T., Lentiro, K., Geremew, M. et al. Global strategies and effectiveness for COVID-19 prevention through contact tracing, screening, quarantine, and isolation: a systematic review. *Trop Med Health* 48, 91 (2020). <https://doi.org/10.1186/s41182-020-00285-w>
- [11] Bhusayen, B.; Seet, P.-S.; Coetzer, A. Turnaround Management of Airport Service Providers Operating during COVID-19 Restrictions. *Sustainability* 2020, 12, 10155. <https://doi.org/10.3390/su122310155>.
- [12] Ansoff, H. I., Kipley, D., Lewis, A., Helm-Stevens, R., & Ansoff, R. (2018). *Implanting strategic management*. Springer.
- [13] World Health Organization. (2020, May 5). WHO Corona Virus Disease (COVID-19). Retrieved from <https://covid19.who.int>.
- [14] M.M. Azeem, Q. Wang, Z. Li, Y. Zhang, Dislocation-oxide interaction in Y2O3 embedded Fe: A molecular dynamics simulation study, *Nucl. Eng. Technol.* 52 (2020) 337–343. <https://doi.org/10.1016/j.net.2019.07.011>.
- [15] M. Mustafa Azeem, K. Abd El Gawad, M. Zubair, S. A. Ibrahim, M. Ado, and G. Mehdi, "Radiation damage effects in oxide dispersion strengthened steel alloys," in *International Conference on Nuclear Engineering, Proceedings, ICONE*, 2019, vol. 2019-May, doi: 10.1299/jsmeicone.2019.27.2086.
- [16] M.M. Azeem, Z. Li, Q. Wang, A. Hussian, Molecular Dynamics Simulation Study on the Possible Factors Affecting Stability of ODS Steel, in: *IOP Conf. Ser. Mater. Sci. Eng.*, 2018: p. 012003. <https://doi.org/10.1088/1757-899X/389/1/012003>.
- [17] M. M. Azeem, Q. Wang, and M. Zubair, "Atomistic simulations of nanoindentation response of irradiation defects in iron," *Sains Malaysiana*, vol. 48, no. 9, pp. 2029–2039, 2019, doi: 10.17576/jsm-2019-4809-24.
- [18] M. M. Azeem, Q. Wang, Y. Zhang, S. Liu, and M. Zubair, "Effect of Grain Boundary on Diffusion of P in Alpha-Fe: A Molecular Dynamics Study," *Front. Phys.*, vol. 7, no. 97, pp. 1–7, 2019, doi: 10.3389/fphy.2019.00097.
- [19] M.M. Azeem, Z. Li, Q. Wang, M. Zubair, Molecular dynamics studies and irradiation effects in ODSS alloys, *Int. J. Nucl. Energy Sci. Technol.* 12 (2018) 381–399. <https://doi.org/10.1504/IJNEST.2018.10018247>.
- [20] M.M. Azeem, Z. Li, Q. Wang, Q.M.N. Amjad, M. Zubair, O.M.H. Ahmed, Classical molecular dynamics study for defect sink behavior in oxide dispersed strengthened alloys, in: *Proc. 2018 15th Int. Bhurban Conf. Appl. Sci. Technol. IBCAST 2018*, 2018: pp. 12–15. <https://doi.org/10.1109/IBCAST.2018.8312177>.
- [21] Muhammet Deveci, Muharrem Enis Çiftçi, İbrahim Zeki Akyurt, Ernesto D.R. Santibanez Gonzalez, Impact of COVID-19 pandemic on the Turkish civil aviation industry, *Sustainable Operations and Computers*, Volume 3, 2022, Pages 93-102, ISSN 2666-4127, <https://doi.org/10.1016/j.susoc.2021.11.002>.
- [22] Dincer, O. (2007). *Stratijik Yonetim ve Isleme Politikasi*. Istanbul: Alfa Publishing.
- [23] Lashley, C. (2008). Marketing hospitality and tourism experiences. In H. Oh, & A. Pizam, *Hospitality Marketing, Management* (pp. 3-31). UK: Elsevier Ltd.
- [24] Gunn, R., & Williams, W. (2007). Strategic tools: an empirical investigation into strategy in practice in the UK. *Strategic Change*, 16 (5), 201- 216.
- [25] Johnson, G., Whittington, R., Scholes, K., Angwin, D., & Regner, P. (2017). *Exploring strategy* (No. 11th e). Pearson.
- [26] Okumus, F., Altinay, L., Chathoth, P., & Koscoğlu, M. A. (2019). *Strategic management for hospitality and tourism*. Routledge.
- [27] Kubickova, M., Kirimhan, D., & Li, H. (2018). The impact of crises on hotel rooms' demand in developing economies: The case of terrorist attacks of 9/11 and the global financial crisis of 2008. *Journal of Hospitality and Tourism Management*, 38, 27-38.
- [28] Richardson, R. B. (2010). The contribution of tourism to economic growth and food security. Mali: USAID Mali, Office of Economic Growth.
- [29] Tourwriter. (2020). *The travel industry is resilient: Historical events and how tourism has bounced back*. Retrieved from <https://www.tourwriter.com>: <https://www.tourwriter.com/travel-software-blog/COVID-19-pt1/>
- [30] United Nations World Tourism Organization. (2020). International tourism and COVID-19. Retrieved from <https://www.unwto.org>: <https://www.unwto.org>
- [31] Gössling, S. D. (2020). Pandemics, tourism and global change. *Journal of Sustainable Tourism*, 1-20.
- [32] IATA, Airlines Cut Losses in 2022; Return to Profit in 2023. <https://www.iata.org/en/pressroom/2022-releases/2022-12-06-01/>
- [33] Emma Hadrovic, Scenarios for the airline industry after Covid-19, <https://www.gisreportsonline.com/r/airline-industry-covid/>.

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