

# Analysis on the Development of Civil Aviation Under the Background of Epidemic

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## ABSTRACT

Civil aviation, refers to the use of various types of aircraft in the air all live except for defense, police and customs activities of the National Aeronautics move, the civil aviation industry in recent years, the rapid development of China, for example 2019 Civil Aviation aircraft registered in the whole of China to reach 3818 aircraft. The annual passenger traffic of 4 crown in the new outbreak 1777.82 million passengers than 2019 fell in 36.7%. The cargo operation volume was 676.61 million tons, a decrease of 10.2%. After the outbreak of the epidemic, both airlines engaged in passenger and cargo transportation and airport groups that provide ancillary services have been severely hit. A large number of established airlines declared bankruptcy and liquidation, and the airport suffered huge losses. This research discussed the question: How should the civil aviation industry reduce losses, when the epidemic continue to rebound or a new global virus emerges. According to the research result, the global civil aviation market developed stably even under the epidemic. Besides, its growth rate is also stable. To avoid losses, airlines should use their limited deposits as much as possible. At the same time, improving customer perception and improving service quality is also a positive way to win the competition.

**Keywords:** *Civil Aviation, Aviation Industry, Tourism*

## 1. INTRODUCTION

The purpose of this research report is to find out the reasons for the sluggish development of the civil aviation industry in recent years, combine the analysis of the specific conditions of each country, and at the same time study the feasibility of regional aviation and what measures airlines should take to reduce costs and increase revenue. Most researchers focus on the development of aviation, they all focus on the aviation industry in normal situation, but this paper focus on how aviation industry solve their financial situation in pandemic situation, and this paper can be a suggestion to modern airlines company.

## 2. FACTOR ANALYSIS

Before analyzing how to improve the company's revenue capability, researchers must study the current market conditions at first and investigate what factors affect or hinder the current development of the civil aviation industry

### 2.1. Epidemic

#### 2.1.1. Route reduction

The biggest factor hindering the development of the civil aviation industry and affecting the civil aviation market is the current new crown epidemic. With the variation and evolution of novel corona-virus Delta strain spread is far more than two original strains of times [1]. Compared with other new corona-virus strains, Delta's biggest difference is that it no longer has loss of smell and taste, and even has a shorter incubation period. The symptoms are closer to get cold than the new corona-virus. At the same time, the number of viruses in the human body is compared to that of the new corona-virus. The original strain is 1,000 times higher. In this case, airports and civil aircraft become the breakthrough point of the epidemic. In the news, a well-controlled epidemic started from the airport. There is also the civil aviation cargo cold chain, where the survival period of the virus can be as long as several weeks under low temperature conditions [2]. Meanwhile, the disinfection effect of the disinfectant

loses a certain effect because of the low temperature environment. This situation leads the governments of all countries, especially the Chinese government, to attach great importance to the "civil aviation imported virus". If a large number of infected people appear on the same flight, the Civil Aviation Administration will forcibly suspend the route. Call it "fuse mechanism". As a result, the number of routes that airlines can operate is reduced.

### *2.1.2. Free refund*

Another factor that hinders airlines is also caused by the epidemic. The Civil Aviation Administration requires free refunds and changes of air tickets during the epidemic. After the policy is promulgated, the company should not charge passengers' handling fees. This has also led to the need for airline companies to help passengers change flights for free, severely restricting airlines' cash liquidity. The liquid of their money will be affected, and they cannot sold enough ticket to recover the number of refund ticket, so companies' income ability are influenced

### *2.1.3. Civil Aviation Development Fund*

The Civil Aviation Development Fund belongs to the Civil Aviation Administration of China. It is a fund allocated by the Civil Aviation Administration of China. It is used to assist civil aviation construction in backward places and purchase navigation equipment. In the first two months of the epidemic, the Civil Aviation Development Fund still requires all airlines to hand in normally until February 2, 2020. Civil aviation development fund can help under-development get chance to build airport, which can broaden airlines company's potential market

## **2.2. Awakening of environmental awareness**

Environmentalism gradually awakened in recent years. All parties who advocate environmental protection are aware of the impact of the development of the aviation industry on world pollution. At present, aviation flying only accounts for 2% of global carbon emissions. However, according to the International Civil Aviation Organization (IATA) predicts that by 2050 aviation carbon emissions will increase by 300%-700% [3]. As prestigious in the world Sombra grid will be highlighted links however aviation emissions and climate change department.

Environmental protection, the impact on airline carbon emissions tax revenue caused by the airline to its passengers are encouraged to pay an additional fee use to offset the carbon emissions of their flight release. For example, Lufthansa, Japan Airlines and Swiss Edelweiss Air empty. Increasing fares will naturally lead to a decline in airline revenue.

The price of the green new type of civil aviation airliner. The new type of airliner uses a new engine to reduce fuel consumption while reducing nitrogen emissions. However, in this way, the change leads to an increase in the unit price of the aircraft, which means that airlines have to spend more cash to purchase aircraft. A change such as former engine 320 aircraft worth approximately \$100 million, while after an engine change prices rose 10% up to 1.1 billion dollars.

## **2.3. Impact of train business on regional aviation**

According to the definition, the range of regional aviation is roughly in the range of 600-1200 km. During the rapid development of high-speed rail in the past ten years, the total share of regional aviation has dropped from 16% to 5% . For example, China Airlines from two 012 purchase C in RJ900 regional aviation aircraft to two 017-year transition to thoroughly combine Lunar A 320 aircraft. It only took 5 years. Train industry now are well-developed, all cities have train station, and the price of ticket are cheapest, which take the market from regional airlines company

## **3. MARKET ANALYSIS**

### **3.1. Overview of the situation and airline status**

RPK refers to number of passenger x total in the process. RPK is the unit used by airlines to calculate passenger traffic. Within a specific time, the number of charges carrying the industry to take its total product of the distance and. Before the epidemic, 2018 October compared at 2017 in the same period the growth rate rose by 6.4%. It can be seen before the outbreak. The global air traffic has increased rapidly and continued.

ASK available seat kilometers, available passenger kilometers formula:  $ASK = \sum \{ \text{number of seats available for sale} \times \text{flight segment distance (km)} \}$ . ASK reflects the airline's capacity. Data are used to analyze before the epidemic, 2018. In October that compared at 2017 in the same period ASK increased by 5.5%. It can be seen that the scale of global traffic continues to rise, which means that the scale of airlines has increased significantly, and it also means that competition is more intense. Besides, according to IATA the IATA 2018 statistics, the global airline has registered 290 home.

### 3.2. Growth forecast

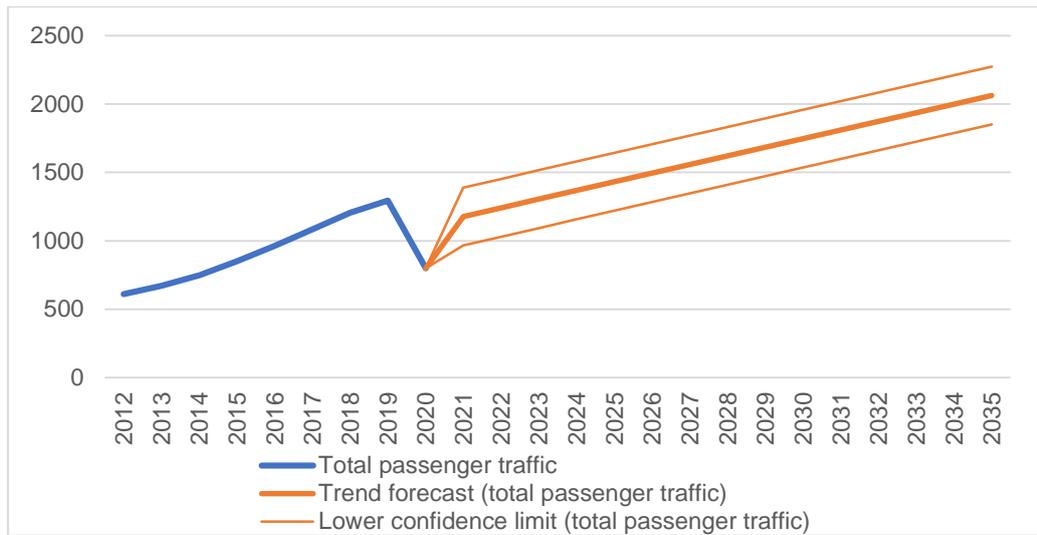


Figure 1. Passenger volume forecast.

According to EXCEL, and the data provided in the China Civil Aviation Development Annual Report, researchers predict China's total civil aviation passenger turnover in the next 15 years as show in figure 1, it

shows that though the volume decrease in 2020 however, at 2022 or 2023 the passenger volume can restored.

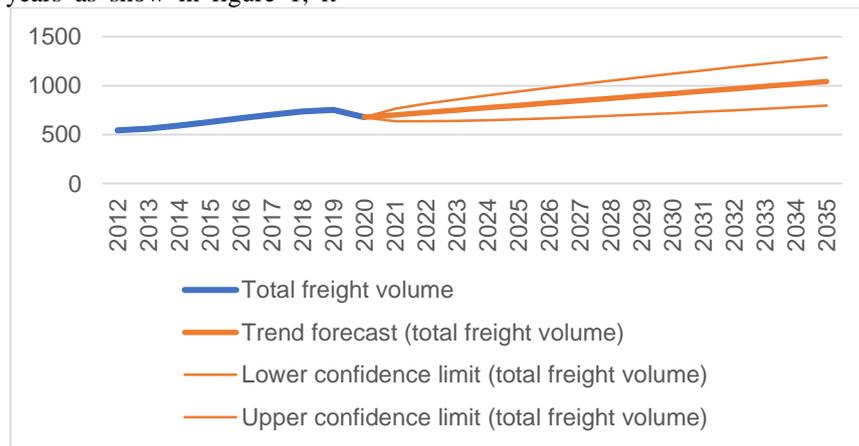


Figure 2. Freight traffic forecast.

According to EXCEL, and the data provided in the China Civil Aviation Development Annual Report, China's total civil aviation cargo turnover in the next 15 years is predicted. As show in figure, to summary, regardless of whether the extreme values-caused by the epidemic in 2020 are excluded, the general trend of the civil aviation industry has been steadily improving.

## 4. THE METHOD TO IMPROVE THE INCOME ABILITY

### 4.1. Development in all way

#### 4.1.1. Industry Group

Multi-sectoral layout can solve the problem of industrial continuity. After tapping the regional civil shipping capacity, companies will inevitably face the

problem of transformation. Deploying multiple sectors and multiple tracks in advance can help companies complete the transformation faster and realize their long-term strategy [4].

The multi-section layout can effectively improve the image of the company, help the company achieve the goal of assuming social responsibility, and help the company improve employee welfare. For example, HNA Group, because it has multiple resources in different sectors which can provide free services for military personnel, discount hotels, catering, shopping and other services during the Army Day [5].

#### 4.1.2. Double main business

The simultaneous development of dual homepages can help companies expand their market share, thereby achieving publicity effects. Make enterprises possessing

high-quality resources concentrate on their main business.

#### **4.2. Improve service quality**

Improving the quality of cabin service can enhance the airline's reputation among the passenger group. China's domestic air ticket price adjustment is limited, and domestic airlines cannot take advantage of price to obtain a larger customer group. Improving the quality of customer service will be an important means to help domestic airlines win the competition [6].

In addition, enhancing customer experience, seamlessly connecting service processes are effective ways for airlines to improve their quality. Furthermore, they can provide door-to-door high-standard services and systematic passenger service processes, such as ticket booking services, catering services, and integrated supporting services for pick-up and drop-off [7].

#### **4.3. Promotion of marketing strategy**

Airlines should strengthen their corporate brand and clarify their social responsibilities. And in this way, it can enhance corporate reputation, establish brand awareness, integrate marketing channels, and highlight key service targets. This can effectively enhance the effect of publicity and allow consumers to fully appreciate the importance of airlines in society. Airline marketing should focus on its own function: to quickly and efficiently help consumers complete point-to-point movement across geographic boundaries [3].

In addition, airlines can also expand sales channels. They can use a combination of online and offline methods, and flexibly use direct sales or agency distribution methods. For example, the HNA Open Line membership card system has strengthened the mileage and points consumption of the company's membership card. In addition, they can also cooperate with large enterprises. For example, airlines can co-sell events related to topics with banks, investment banks, and the Internet industry. For example, customers can accumulate more points by spending with a bank card. This way can expand the scope of customers.

#### **4.4. Airline operational efficiency**

The single model is improving maintenance efficiency, reducing personnel training costs, and reducing the number of maintenance. At present, most domestic airlines have complex models, such as Airbus, Boeing, Bombardier, COMAC, various models, and various models are uneven. It is not conducive to the overall management of the company, and it also puts serious pressure on the company's logistics support team. The logistics support team needs to hire a Boeing maintenance team and an Airbus maintenance team.

Ensuring that a single model can effectively alleviate logistical pressure such as Southwest Airlines. A single crew on short-haul voyages performs multiple duties, concentrates on the development of short-haul routes between medium-sized cities, reduces unit costs, increases passenger traffic, and increases income levels. Then, building oil depots to ensure stable oil prices through financial means. In addition, aircraft maintenance should be well conducted. Increased aircraft operating time and reduced the amount required to purchase new aircraft each year. For example, Delta Airlines still operates 717, and Southwest Airlines still operates 737-300 with 22 years of age. Finally, airlines should reasonably purchase aircraft and custom seats=. In addition, it is also very important to distinguish the internal structure of the seating arrangement. Airlines can customize a set of seats according to the income of people in different routes and in different regions, and appropriately change the number of seats in the first class.

#### **4.5. Highlighting regional characteristics and combining tourism elements in aviation**

Airlines should provide special in-flight catering services and improve the quality of catering to improve passenger reviews. Airlines can also collaborate with the tourism industry in the flight destination. They can combine regional tourism activities to customize travel packages for customers. Hotels, restaurants, and air tickets can be combined for comprehensive sales.

### **5. CONCLUSION**

At present, it seems that the global civil aviation market is still sluggish, but from the past data, the global civil aviation market is developing healthy, growing rapidly, and the growth rate is stable. Due to the epidemic, luck has declined, but the prospects are still good. In the face of declining profits, airlines should use their limited deposits as much as possible in the context of economic downturn to merge companies in different directions. This will have a positive impact on airline revenues and will also enhance brand value. At the same time, improving customer perception and improving service quality is also a positive way to win competition.

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