REMODELING THE AIRLINE BUSINESS TO TAKE OFF IN A POST-COVID ERA

Abstract

The aftermath of COVID-19 has deeply impacted industries like airlines, hospitality and tourism with revenues nosediving. As players in the aerospace industry (including airlines, aircraft manufacturers and airport operators) struggle to cope, they must explore alternate ways to cut their losses. With safety norms like social distancing in place across the globe, flying must balance passenger safety with airline profitability. This paper lists out some design and business model recommendations for airlines and aircraft makers that can help them cope with the present situation. In some cases, executing these changes will require collaboration and new approaches to adapt to the new normal.

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Introduction

COVID-19 took the world by surprise, disrupting industries and redefining the word 'normal'. While several countries, organizations and experts are working to find a vaccine, in the meantime it is important that we learn to adapt to the new 'normal'.

The airline, hospitality and tourism industries are some of the most severely hit due to this pandemic. Many leading companies in the airline industry were forced to shut down operations, exacerbating concerns for aircraft manufacturers. Looking ahead, the aircraft industry must consider how it can get off the ground by ensuring safety during travel.

Some of the ideas mentioned in this paper are already being tested as pilot projects. However, the applicability depends on the region of operations, maturity of air connectivity, airport infrastructure, and regulatory compliance, among others. While OEMs may evaluate design changes for end customers (airline operators), these are expensive and usually among the last modifications to be explored.

Recommendations to improve business viability

1. Modified passenger cabins

From an engineering standpoint, an aircraft's capacity is defined by the maximum take-off weight (MTOW). This is a sum of the operating empty weight (OEW), weight of the fuel and the payload. Payload can be cargo, passengers (PAX) or both. Considering the mandatory social distancing requirements enforced globally, aircraft cannot fly with the existing layouts for passenger accommodation (LOPA).

Here are two ways to change the LOPAs while making the best use of MTOW:

A. Alternate seat allocation

This option is the most obvious one being considered by airlines. Seat allocation is done in accordance with social distancing norms[1]. This model can be useful in the interim when restarting operations. However, it could lead to soaring ticket prices, with a consequent fall in air travel and potential losses for airlines.

B. Mixed cabin layout
Airline initiative as design changes by OEMs can be costly

Another solution is to maintain PAX seating in adherence to social distancing norms and use the empty seats for small parcels/cargo. This might appear uncomfortable for passengers but it is a viable option for aircraft operators, particularly low cost carriers (LCCs), looking to gain additional revenue by carrying small-sized cargo in passenger flights. Executing this will require support from ground support teams to ensure flight safety by firmly securing such cargo to the seats. Additionally, quick cargo loading and off-loading during transit is needed. OEMs may consider simplifying the seating arrangements compared to the existing set-up. Additionally, fewer passengers will mean less cabin attendants needed, thus reducing overhead costs for aircraft operators. In light of the present situation of low passenger counts, airlines like Finnair[2] and IndiGo[3] have already started utilizing passenger aircraft to transport cargo.

2. Innovative operating models

A. Hop-on and hop-off

Airline initiative for emerging markets such as Asia, Middle East and Africa. Some of these routes already leverage the hop-on hop-off concept, which may be tweaked for better seat occupancy.

Aircraft operators can avoid a single long flight by breaking the journey into multiple hops. These hopping destinations can be smaller airports or unexplored destinations. Some of the benefits this approach are:

- Improved passenger counts – It reduces the possibility of an operator having to fly with many empty seats

- Improved connectivity for newer regions – Customers from smaller regions can access frequent flying services, increasing operator revenues in the new market

- Lower operational costs – Smaller airports have lower parking charges, shorter landing queues, minimum runway incursions, and simpler boarding processes. This will help airlines provide on-time service with lesser complexity. It can also save money on fuel, ground handling, landing charges, human resources, etc.

B. Code sharing

Airline initiative for growing markets such as China, India, Middle East, and Africa

Many airlines already use code sharing agreements during long haul flights in order to stay competitive and profitable. Under code sharing, seats on a route can be marketed and sold by one carrier but operated by a different carrier. In anticipation of growth in newer markets over the next 10 years, new code sharing norms are needed.

For LCCs, the main goal is to ensure optimal usage of every flight. Aircraft must take-off with the best PAX occupancy irrespective of the airline from which an end customer makes the purchase. The need is to derive

a unified optimal PAX allocation across various operators, aircraft types, flight sectors, and destinations. Such a business model can be powered through digital solutions that use robust optimization algorithms such as an allocation optimization solution catering to air cargo or a combination of cargo and passengers.

C. Demand for smaller aircraft

Airline initiative for newer markets that might impact OEM sales

To improve occupancy, airlines should consider flying to newer routes. This includes areas where demand exists but air connectivity is limited. Smaller airports mean smaller aircraft with shorter runway requirements. The frequency of such flights can be based on actual demand. This model may cause shifts in aircraft purchase behavior. For instance, turboprop-powered regional aircraft may be preferred over turbojet-powered narrow body aircraft. There are many reasons for such shifts such as fuel efficiency, runway requirements, operating costs, etc.

D. New cabin interiors and services

Manufacturer's initiative

With strong focus on social distancing, one can anticipate newer cabin interiors in upcoming aircraft with features like:

- Disposable covers

- In-built UV machines for self-sanitizing interiors during and post flight

- New avionics for gesture-controlled switches

- Queue-enabled logic for lavatory use with options for prioritizing customers

- Automated in-flight services, robots to reduce human touch

These changes will promote maximum process/task automation. This will allow trained staff to concentrate on handling in-flight crises where human intelligence can take over from artificial intelligence.

The role of regulatory bodies

Besides these changes on the part of airline and aircraft manufacturers, there are steps that governments, regulatory bodies, aviation organizations like International Air Transport Association (IATA) and International Civil Aviation Organization (ICAO), etc., can also adopt.

Governments can share the status of the coronavirus across various locations within the country, thereby classifying passengers from critical locations as 'under observation'.

Regulatory bodies and organizations like IATA, ICAO, etc., can enforce stringent measures to ensure that every passenger's travel history is available. This information can be captured through mobile apps using history of locations visited. Based on this, a passenger can be classified as 'safe to travel', 'under observation' or 'not safe to travel'. At present, airport staff only verify a passenger's identity to ensure that the correct passenger boards the flight. In future, a passenger's location history must also be scrutinized to gauge the probability of COVID-19 infection and spread.

Currently, many airlines and OEMs are working on initiatives to deal with the COVID-19 pandemic such as:

- Alternate passenger seating arrangements

- Using protective gear like personal protective equipment (PPE) including face masks, face shields, sanitizers, etc.

- Revising the timetable for aircraft preservation tasks by extending the intervals between scheduled maintenance tasks

- Enabling e-delivery processes for new aircraft[4]

Some of these steps were immediate responses toward the crisis. In future, all the suggestions mentioned in this paper will need detailed planning, dedicated effort and financial investment to provide viable solutions for this industry.

Conclusion

As the world awaits the arrival of a COVID-19 vaccine, some of the worst hit industries must find ways to restart business operations. For the airline industry, this means altering the interior design of aircraft, leveraging new business models and making minor adjustments to operations. It will take the combined effort of governments, regulatory bodies and manufacturers to make flying feel safe and affordable for customers and profitable for carriers and manufacturers.

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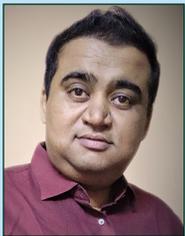
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