



# LOOKING FORWARD TO TOMORROW'S WORLD CARRYING THE LOAD: THE USE OF PASSENGER AIRCRAFT TO HAUL CARGO DURING THE COVID-19 PANDEMIC

by Rohan Soni

## *Takeaways*

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- Airlines and operators have been carrying freight instead of passengers during the COVID-19 pandemic to maximize their revenues
- As passengers return to the skies and aircraft return to passenger service, airlines must focus on maintaining high cargo revenue in tandem with passenger flights
- Some airlines are using the conversion process as an opportunity to refit, overhaul and upgrade aircraft



A vast number of airlines and other aircraft operators found that the COVID-19 pandemic took away a key source of income – passenger travel. With most global borders closing and individuals more concerned than ever about embarking on international leisure and business travel, the sharp decrease in passenger numbers meant operators needed to look at alternative revenue streams to stay afloat. The obvious and most common solution was to carry freight, which required minimal human intervention and, with no passengers on board, there was minimal risk of spreading the virus. Some operators were already prepared for this, having pre-existing freight operations and divisions, while others quickly adapted (by passenger-to-freight conversions), or just improvised (by carrying cargo in the main cabins of passenger aircraft). So, with the gradual return of passengers to the skies, how is the cargo carrying capacity impacted? And going forward, how can airlines and operators maintain a “hybrid” model to sustain revenues from more than one earnings stream?

### **Why do aircraft operators carry freight as well as passengers?**

As with any business model, it is important to diversify revenue streams where possible, to ensure that if any one revenue stream is impaired, the other income streams can continue unaffected, to minimize (or eliminate entirely) any losses. Although passenger travel is usually the most profitable part of an airline's business model, freight is also a useful “dual” revenue generation tool. Aircraft have cargo storage space in the “belly” of the airframe – part of this space is used for luggage storage for passengers, and the rest is used to carry cargo. The benefit of doing this on passenger planes is that often the route is direct, so cargo arrives at its intended destination much quicker (as opposed to freighter aircraft, which have multiple stops, much like a bus route).

A large passenger aircraft, such as the Boeing 777-300, can carry up to 21,000 kg of cargo, in addition to a full load of up to 442 passengers (in a two-class configuration). The cargo capacity is therefore useful to add to the revenue of each flight. The aviation industry made over \$128 billion in carried cargo in 2020, with that figure set to rise to over \$152 billion in 2021. There has always been a hybrid model to aviation – airlines use a combination of passenger revenue and cargo revenue to maximize their profitability, as passenger travel alone has quite slim profit margins (after the payment of taxes, fuel costs, salaries for staff, consumables like food and beverage, and ownership and maintenance costs). The profit for passenger travel alone is slim, often less than \$20 per seat. So, airlines often enter into more profitable freight contracts with postal services or international shipping companies. A major U.S. postal service, for example, leases space on over 15,000 aircraft per day. From a holistic point of view, each aircraft would fly to its destination regardless, so filling the empty “belly” of the aircraft with cargo makes logical sense to maximize profits. And on the plus side, pallets of goods don't need to be fed and watered every two hours!

## Conversion of passenger aircraft

From March 2020 onwards, airlines found themselves with a sharp decrease in passenger numbers and a fleet of aircraft that was burning money in hangar, maintenance, and insurance costs, along with a myriad of other business expenses to stay afloat. With strict regulations, international borders closing, and an overarching newfound fear of traveling, airlines were forced to turn their attentions to cargo (even if they had not previously needed to do so).

There were two schools of thought to capitalize on cargo revenue during this period. The first was that the COVID-19 pandemic would be short-lived and that cargo could be flown on top of seats and in empty spaces in aisles and overhead lockers. The second was to bite the bullet and undertake a P2F conversion project to remove all seats, in-flight entertainment (IFE), and passenger service provisions to create a pseudo-freighter aircraft. During the pandemic, Korean Air, for example, flew over 10,000 cargo flights on passenger planes. The primary function of freight aircraft during the initial period of the pandemic was to carry medicines, PPE, food provisions, and other essentials to people who were left without certain essential supplies. As the pandemic progressed, air freight assisted to alleviate the pressure on the global shipping industry. Once vaccines were developed and able to be transported, passenger aircraft were used to transport these quickly. However, there was a logistical challenge to overcome – keeping the vaccines cold enough. The Pfizer vaccine, for example, needed to be stored at minus 70 degrees Celsius, which required specially insulated cargo boxes with dry ice to keep them cold enough. As a by-product, dry ice produces emissions of CO<sub>2</sub>, which, in turn, is limited in quantity as to how much can be carried on each aircraft.

In order to store as much cargo as possible, many airlines made quick work of stripping all passenger “luxuries” (including seats, IFE systems, and even some of the catering facilities) out of their cabins. Reducing the cabin weight and bulk meant more cargo could fit into the interior of the cabin and more load could be taken. It is important to note that pilots for cargo aircraft require different certifications than pilots carrying passengers only – a consequential effect of the shift to cargo was that a number of passenger pilots were laid off from their roles, whereas those with additional cargo-carrying certifications were more in demand and required to continue flying during the pandemic shift in air transport.





## The shift back to passenger travel

From mid-2021, various governments began to ease their border guidelines and the ability for individuals to travel by air. Of course, the easing of restrictions came with additional requirements (such as pre- and post-testing, quarantine in the arrival jurisdiction, and the use of face masks during travel). For airlines, it meant their fully or partially grounded fleet was able to operate again, with a gradual reintroduction to various routes and travel corridors.



Photo: HAECO

So, what happened to all the aircraft that were carrying cargo? Well, for those airlines and operators who opted to keep their aircraft as they were (with seats installed et al), this transition back to passenger flight was a fairly easy one – cleaning procedures and restoration of the aircraft to be suitable for passenger travel once again.

However, those operators who maximized their cargo revenue during the period where passengers could not fly and stripped their aircraft back to their bones to increase cargo load space had a bit more work to do. Some airlines used the opportunity (of both minimal passenger service and having stripped interiors) to upgrade interiors, make appropriate MRO repairs, modernize IFE and Wi-Fi systems, and so on.

Going forward, the “hybrid” model of cargo and passenger travel can be implemented through cargo innovations which we have been forced to think about during the course of the pandemic. For example, a Lithuanian company called Colibri Aero has developed cargo boxes that can be fitted in situ in a cabin, in conjunction with passenger seats. In the future, this kind of hybrid model may quickly allow airlines to use unsold seats for cargo instead in order to maximize profitability on routes with a lower passenger load percentage. This is perhaps a more attractive proposition for low-cost carriers rather than those airlines aiming at a more “premium” target audience.

## Conclusion

There is much to be said about the relative profitability of cargo transportation as opposed to passenger traffic. However, the COVID-19 pandemic has caused airlines and operators to think differently about having multiple revenue streams and using their assets to their greatest advantage to maintain and, indeed, capitalize on increased profitability. As passengers begin to return to the skies, airlines will need to rethink, at a global level, which routes and jurisdictions are most profitable for passenger transport and how they can use a hybrid model to increase revenues on emptier journeys. The world is back on its way to opening up, and the hybrid cargo and passenger model may just help some airlines and operators to stay afloat.

## Author

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### Rohan Soni

Associate  
London  
+44 (0)20 3116 3442  
rsoni@reedsmith.com

Rohan is an associate in the Transportation Industry Group based in Reed Smith's London office. He has a particular focus on shipping and aviation transactions. Rohan has acted for major international banks, funds and private equity clients, shipowners and charterers, airlines and lessors, export credit agencies, private individuals, shipbuilders and aircraft manufacturers across the full spectrum of shipping and aviation deals.