



Cloudy Skies

Anticipated structural changes
in the global air freight market

This article highlights a view of the global air freight market. We discuss a selection of industry-shaping business drivers as it was before the COVID-19 pandemic and investigate the ramifications of the pandemic to the air freight industry. The current situation may be temporary, but important shifts in the industry are likely, and these could have profound effects on related sectors.

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Air freight has been closely intertwined with passenger flights. Belly-load cargo has become an ever increasing method of international transport in an overall rapidly growing market. However, the use of planes for passenger transport recently came to a screeching halt due to the COVID-19 pandemic. As reports of cancelled routes and planes flying without passengers emerged in the media, air freight has experienced a twofold to fourfold increase over regular prices.

From facilities around airports to national policy regulating flight movements and global forces that dictate the flow of goods; a multitude of factors influence the air freight industry, many of which are strongly affected by the current pandemic.

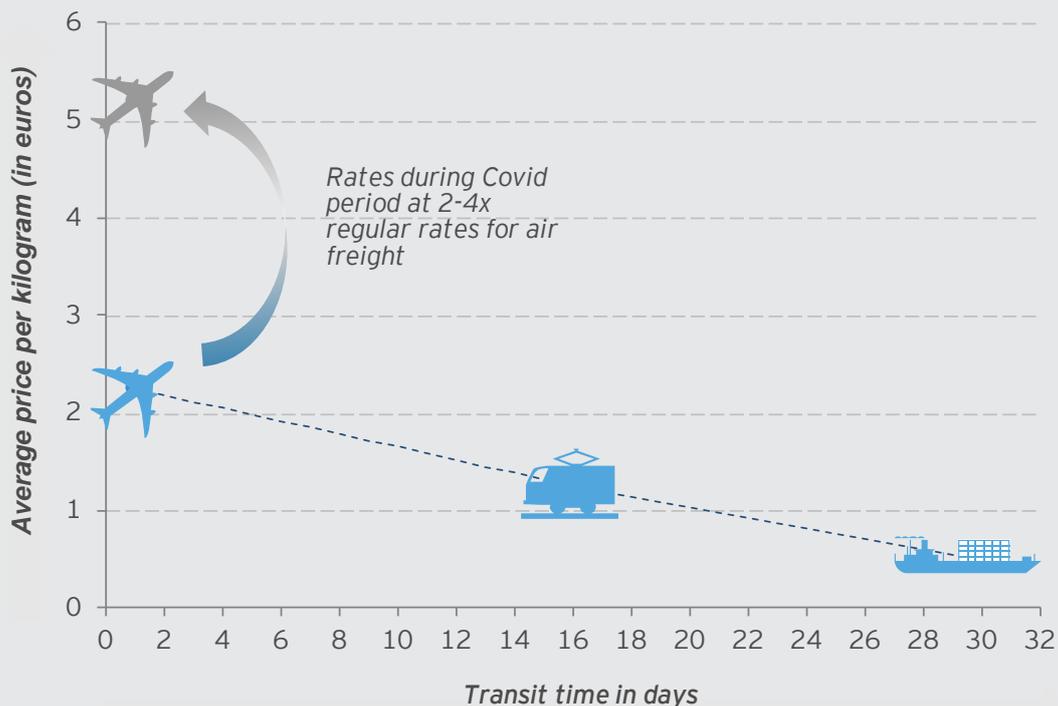
When sky beats sea

Air freight is all about speed and, hence, at clear premium pricing.

Shades of blue: when sky beats sea

The most economic mode of transport is offered by large container ships. Here, economic efficiency is the primary concern, making it a cost-effective, albeit sluggish, option for the intercontinental transportation of goods. On the other side of the spectrum, we find air freight, for which speed is the *raison d'être*. The valuation of speed is reflected in the premium pricing (see Exhibit 1). For many, it seems to be a price well worth paying: over the past years, the air freight industry has seen an average annual growth of around 5% and pre-crisis forecasts by Boeing in 2019 boasted an average annual growth rate over the coming 20 years of more than 4%, well above global GDP growth rates.

Exhibit 1: Average transit times and cargo prices China-Europe by modality



Source: Source: TAC-Index (www.tacindex.com); sino-shipping.com; BNP Paribas (An analysis of the European transport sector, Aug. 2016).

Demand for swift transport stems from two wishes: (i) producers simply want to move goods around faster, thereby eliminating the need to hold onto sizable inventories spread over their target markets (e.g., spare parts for machinery); (ii) other goods, such as perishables and livestock, necessitate short transit times (e.g., flowers, horses and – especially in current times – medical equipment). Oftentimes, the motivation lies in between these two categories. A spare part will certainly arrive unscathed after a long stay aboard a cargo ship, but the same possibly could not be said of the receiving company that has had to reduce its production capabilities during the wait.

As a result, the value density of air freight is generally higher than that of goods shipped by other modalities. In fact, while less than 1% of the volume of all freight is transported by air, this amounts to an impressive 35% according to Boeing of total value of traded goods.

Decision-makers and network effects

Freight forwarders are still the centerpiece in the air freight value chain.

Decision-makers and network effects

Freight forwarders are still the centerpiece and key decision makers in the value chain (see Exhibit 2), despite many initiatives to digitize and eliminate their role. Network and connectivity effects play an important role and freight forwarders' bundling and procurement functions hold clear value. Their physical presence at an airport results in an improved supply chain and is, as such, a driver of route selection.

Ultimately, the flow of freight and where a freight forwarder physically settles boil down to a choice between airports. Herein there are various factors to consider: market demand with sustainable volume of goods to be transported (by air), presence of supporting infrastructure and facilities in and around the airport, and connectivity options of the airport and no capacity constraints on the number of flight movements.

Exhibit 2: Air freight logistics value chain from shipper to airline



Shipper	Freight forwarder	Trucking company	Ground handling agent	Airline
<ul style="list-style-type: none"> ▶ Owner of goods that need to be transported ▶ Determines destination, ultimate time-of-arrival, budget and therewith final decision-maker in shipment route (airline) 	<ul style="list-style-type: none"> ▶ Lists various transport options, preferably from home airports ▶ Typically pre-books capacity options with airlines on specific routes ▶ Finalizes pre-booking with the chosen airline and, when required, the trucking company ▶ Responsible for customs clearance, occasionally outsourced to customs broker if no in-house capacity 	<ul style="list-style-type: none"> ▶ Trucking of the goods from the shipper to the booked departure airport (i.e. place of consolidation, not necessarily airport from which the plane departs), often arranged by the freight forwarder ▶ Freight forwarders can have integrated trucking transport service or they work with external partners 	<ul style="list-style-type: none"> ▶ Operates cargo handling on the airport grounds ▶ Responsible for loading and unloading of the cargo 	<ul style="list-style-type: none"> ▶ Chooses airports and operates flights ▶ Chooses ground handlers at the departure airport to handle cargo ▶ Arranges inter-airport trucking if required (when the booked airport is not the departure airport)

By categorizing airports as tier 1 or tier 2 (T1 and T2), respectively, the dynamics of the industry can be demonstrated. In general, T1 airports exhibit strong local shipping demand, extensive and frequent connectivity, and a high measure of operational efficiency. In continental Europe, Amsterdam and Frankfurt are prime examples of T1 airports, whereas Luxembourg, Liège and Hahn can be classified as T2 (see Exhibit 3). Provided that T1 are not capacity constrained, these airports will often be preferred by freight forwarders. However, most major hubs in Europe were nearing their limit of flight movements before the COVID-19 pandemic. This allowed for rapid growth of T2 for overflow capacity (or they function as a leading parcel delivery hub, which can be considered a separate stream of business).

Another important distinction is more clear-cut, namely the distinction between full freighters and passenger aircrafts. Due to the sprawling network of passenger airlines, these aircrafts are well suited for the secondary function of hauling cargo. Broadly speaking, the latter enable four to five times more cargo capacity compared to their passenger carrying counterparts. Belly load, hence introduces significant flexibility to freight forwarders, allowing them to ship to the same destination at four times the frequency of one full freighter or reach four scattered destinations at the same time (or any variation in between). Before the COVID-19 pandemic, passenger aircraft transported approximately 48% of all commercial air freight, while they accounted for over 90% of freight-carrying flight movements.

Exhibit 3: Attractiveness of airports for freight forwarders



Source: EY-Parthenon interviews.

Commercial incentives

There are subtle differing incentives for each actor in the market, wherein passengers typically represent the most profitable revenue streams.

Commercial incentives

Naturally, freight forwarders, airlines and airports all try to maximize the profitability of their operation. In general, T1 airports prefer passenger planes as travelers' non-aeronautical expenses on facilities, such as parking, restaurants, commercial outlets and lounges, contribute significantly to their bottom line. As such, in a capacity-constrained situation, airports tend to prioritize passenger aircraft. Airlines are subject to these capacity constraints; hence, they may be unable or unwilling to pay for a slot at an airport that otherwise would be an ideal candidate for an additional route.

For freight forwarders, meanwhile, the most important criterion in their airport selection process is the readiness of freight demand in the region. Secondly, airport connectivity is an important factor, which largely is driven by frequent passenger routes. On the other hand, the reason for full freighters to settle at a T2 airport often is the priority status of passengers over freight and congestion related to passengers at T1 airports, thereby impacting efficient operations.

The business models of the three actors drive their incentives. In general, we find that airlines and freight forwarders group together at airports in regions of high economic activity. Herein lies the foundation of the gradually built-up infrastructure and success of T1 airports. In addition, several T2 airports have developed attractive alternative capacity for overflow from T1 (see Exhibit 4 on next page).



Market impact in turbulent times

Important structural shifts in the commercial aviation market are bound to occur.

Stormy skies: market impact in turbulent times

The COVID-19 pandemic has disrupted many industries, but few have been hit as hard as the airline industry. With lockdowns in place all over the globe, monthly passenger numbers have plummeted to historical lows. Although it is yet unclear how the recovery of the pandemic will unfold, important structural shifts in the commercial aviation market are bound to occur.

In the past, growth trajectories of passengers and freight by air have been strongly correlated. Presently, however, a decoupling has occurred. As a result of the COVID-19 outbreak the worldwide passenger carrying capacity decreased by 87% year over year in April 2020, as shown by IATA (International Air Transport Association), so did belly-load capacity. Although several full freighters captured available slots at T1 airports, overall capacity saw a year-over-year decline of 42% in April 2020, estimates by IATA suggest total demand for air freight fell only by 28%.

This discrepancy, referred to as the capacity crunch, had several causes and was fueled in part by the urgent demand for medical equipment across the globe. As a result, air shipping prices worldwide increased sharply. Prices for transport from Hong Kong to Europe shot up from €2.25 per kilogram on average over 2019 to €5.20 per kilogram in May 2020 – and they are still rising.

Exhibit 4: Airport statistics, 2019

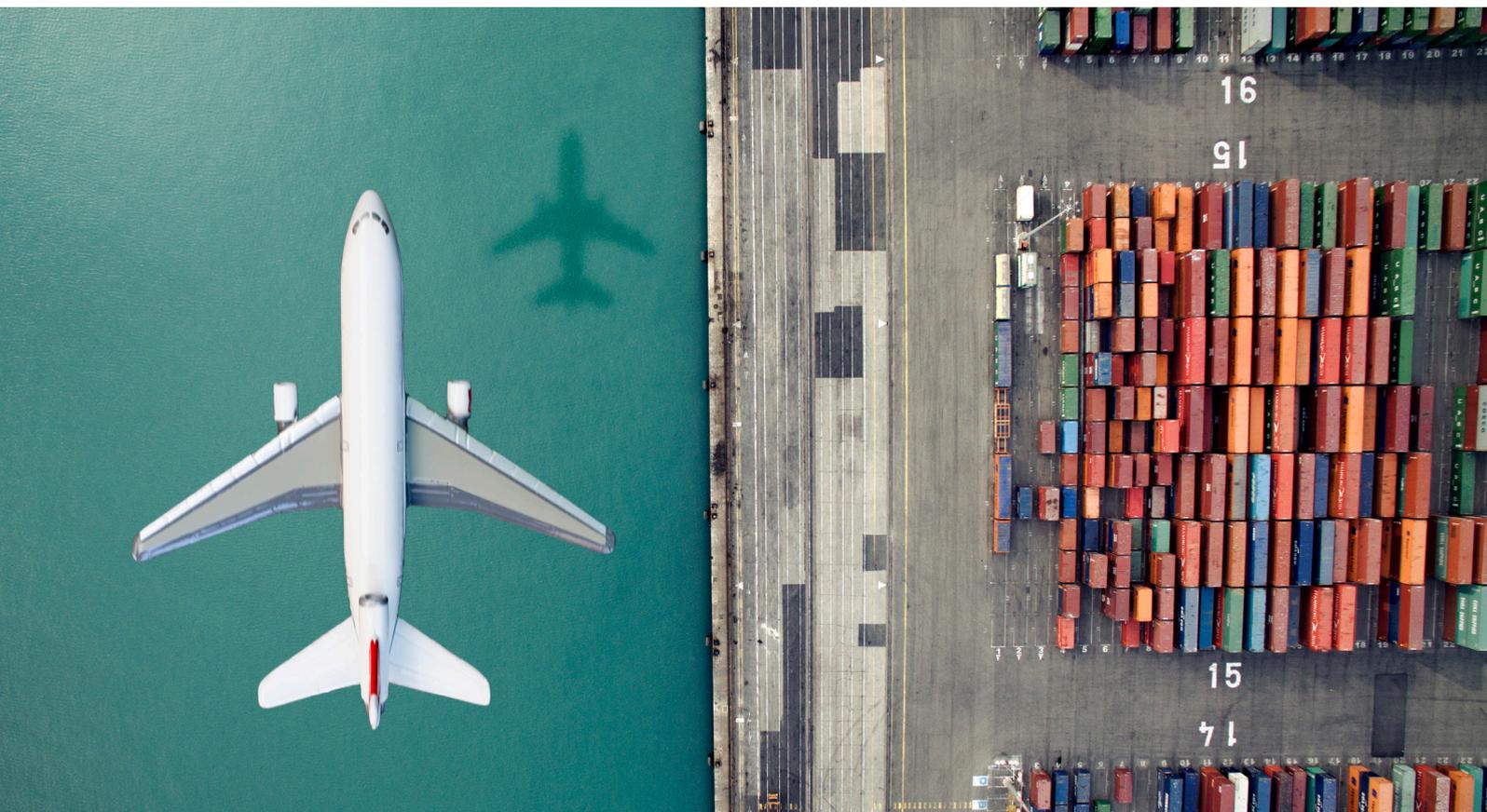
	Cargo volume Thousand tons	Passenger volume Thousand persons	Home carrier
Passenger airports	Frankfurt Airport	2.130	Lufthansa
	Charles de Gaulle Airport	2.100	Air France
	London Heathrow Airport	1.590	British Airways
	Schiphol Amsterdam Airport	1.570	KLM
	Brussels Airport	501	Brussels Airlines
Parcel hubs	Leipzig/Halle Airport	1.238	DHL
	Cologne Bonn Airport	825	UPS
Cargo airports	Luxembourg Airport	893	Cargolux
	Liege Airport	902	FedEx
	Frankfurt-Hahn Airport	170	
	Maastricht-Aachen Airport	111	

Source: Eurostat transportation database; Annual airport publications of each respective airport.

The industry has been quick to adapt to the new circumstances. Two important developments are worth highlighting: (i) a rebalancing of the airports used by freight forwarders and (ii) a shift in usage of aircrafts through temporary reconfiguring.

As previously stated, T2 airports commonly function as overflow capacity of the more preferred T1 airports. The mass cancellation of passenger flights, however, has negated the issue of capacity constraints at T1 airports, and has incentivized these airports to welcome full freighters once again, thereby bucking the trend of the past decade.

In a similar vein, airlines have attempted to increase their freight capacity. With lease payments for aircrafts continuing, passenger numbers nearly at rock bottom, and pushed by increased shipping fees and low fuel prices, airlines have refocused on air freight as a source of revenue. Recently retired freighters have re-entered service and passenger aircrafts are being utilized in a hybrid fashion, wherein cargo is also loaded in the cabin. Companies such as Israel Aerospace Industries, which convert passenger aircrafts to full freighters, have seen high demand for their services. Full conversion, however, represents a costly undertaking and a long-term shift in asset allocation. As such, this can be understood as a possible signal for a protracted rebalancing in the industry.



Clouds with a silver lining

Different strategic considerations are of importance to the various players in the market as a result of structural changes in the air freight dynamics.

Clouds with a silver lining – but for whom? Strategic considerations for the future

The initial shock of the pandemic and rebalancing of the market are only transitory. To a large extent, demand for air freight follows developments of the world economy. Although the economy is expected to go through a deep low in the months to come, it will grow back to previous levels. The crisis has propelled the subject of global supply chains' dependence on certain key countries to boardrooms, yet possible reactive diversification currently does not seem to entail a shift of production capabilities closer to end markets. As a result, long-haul transport is set to remain an important pillar in global trade, with the speed of air transport ensuring an unrivaled advantage for many product categories. At the moment, a so-called V-shaped economic recovery may be born out of optimism, though full recovery is anticipated by most actors to still take multiple years.

With global shipping demand potentially fully restored, the crucial factor is the supply side. As mentioned before, nearly half of all commercial air freight is transported by passenger aircrafts. Passengers can be broadly divided into two groups: leisure and business. Demand from the former is expected to show a full, albeit slow, recovery after the pandemic. The effect on business travelers, however, may be of a more indelible nature. While videoconferencing was nothing new to businesses, the pandemic has given rise to wide adoption of videoconferencing capabilities at every stage of business. For many, the experience has been surprisingly



positive. As such, the proposition of long flights, days away from home and disturbed biological clocks all for some meetings and face time can seem a lot less appealing and, perhaps, even antiquated. Surely, business travel is not going away, but the scenario of a prolonged slump in demand from this segment is not unlikely.

This could have severe repercussions for airliners. Business travelers, after all, are the most lucrative segment and an important factor when considering routes and frequency thereof. Airlines may have to rethink their connections. Long-haul flights may rely more on transits at major hubs, effectively decreasing the connectivity to and from specific airports and the flight frequency to previously popular destinations could be scaled back, decreasing the speed of air freight operations.

Full freighters could pick up some of the slack. However, the dense network of passenger aircrafts and their modest payload enabled low volume delivery at airports close to the shipper's final destination. To emulate these circumstances, full freighters would either have to fly with loads much less than their capacity or decrease the frequency of their delivery, which would negatively impact the speed and efficiency. Hence, this would still be a driver of increased air freight rates.



There are three non exclusive outcomes that may come to fruition after the COVID-19 pandemic.

First, the situation described in the previous section will likely result in a decrease of freight capacity, combined with an erosion of the rich connectivity of networks from airports. Shipments to major hubs will be relatively unaffected, but decreased frequency and transit times may well affect the cost and speed of shipments to and from relatively smaller airports.

Secondly, there will be a profound effect on the shippers of goods. Increased prices are unlikely to have a significant impact on high-value goods, such as spare parts and consumer electronics. After all, transport represents a relatively low percentage of a product's total value. For lower-value products, however, this will probably be less straightforward. In this category, perishables such as flowers come to mind. Those businesses will have to anticipate changes in the freight industry. Alternatives that did not exist previously, may be viable options. Rail, for instance, may not be able to match the speed of air freight, but it offers greatly increased speed over sea shipping, while advances in technology enabled increased preservation of perishables in specialized wagons. In addition, rail networks have seen a surge in investments, making their routes more suited for cross continental transport.

And finally, let's discuss the structural rebalancing of T1 and T2 airports. With the number of movements from passenger flights unlikely to recover to pre-COVID-19 levels in the coming years, many T1 airports in Europe will be less capacity constrained and, hence, more welcoming to flights previously not deemed sufficiently lucrative. T2 airports and the supporting companies surrounding them might be more vulnerable in this period.

Companies and actors throughout the value chain are impacted by the current pandemic. Those that want to get out ahead should anticipate the future and not wait for a recovery back to the past. The current situation may be temporary, but important shifts in the industry are likely, and these could have profound effects.

Exhibit 5: Anticipated structural changes to air freight market



Want to know more?

EY-Parthenon professionals are happy to provide more information about our experience in each of these areas and look forward to supporting management teams and investors in addressing the strategic challenges and opportunities within the transport and logistics sector.



Bram Kuijpers

Partner
bram.kuijpers@parthenon.ey.com
Rotterdam
EY-Parthenon B.V.



Wouter Vincken

Senior Manager
wouter.vincken@parthenon.ey.com
Rotterdam
EY-Parthenon B.V.



Jason Mulder

Associate
jason.mulder@parthenon.ey.com
Rotterdam
EY-Parthenon B.V.

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