

Aviation

Research

Prospects for Wide-Body fleets

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Researchportal:
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Summary

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In the medium term, current production plans do not cover normalised demand

International long-haul traffic is currently suffering massively from the effects of the COVID 19 pandemic. In particular, numerous travel restrictions are posing obstacles. As a result, the utilisation of the global wide-body fleet is also suffering. Still 37% of this fleet are in storage. However, experience so far shows that in the wake of (regional) loosening of travel restrictions, demand increases strongly, often even more than expected.

Airbus and Boeing have responded to the low demand for wide-bodies in light of the COVID 19 pandemic by cutting their production. However, both manufacturers plan initial production increases again. Historically, there is the need for in average 220 new wide-bodies annually. About half of this demand is each for replacement and growth investments. The currently planned production increases of Airbus and Boeing would not cover such a normalised demand.

We forecast that the global passenger demand will reach pre-crisis levels in 2024. With capacity increases running ahead, we expect the total wide-body fleet to return to 2019 levels in 2023.

In the medium term, we expect an increase in production capacity, new orders for wide-bodies and the return to service of currently parked aircraft, but not all of them.

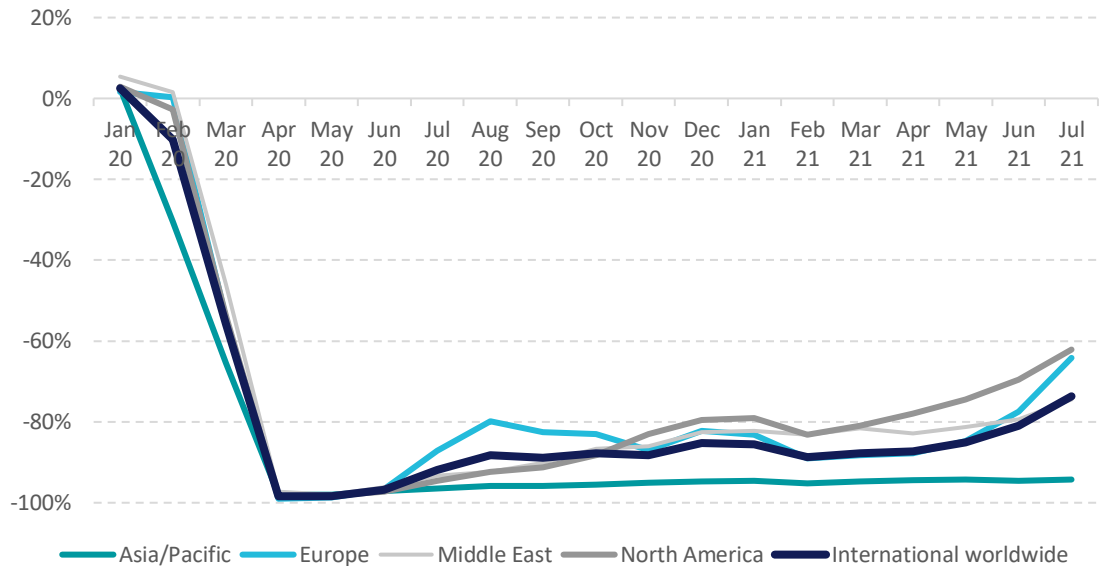
We expect the highest future demand for the comparatively efficient Airbus A350 and Boeing 787-9. Demand for the Airbus A330-900neo and, in the medium term, for second-hand Airbus A330s could also pick up, as these aircraft are suitable replacements for ageing wide-bodies. In contrast, demand for less efficient aircraft and niche models (Boeing 787-8, Boeing 777-300ER, Airbus A380) is likely to remain low.

Weak intercontinental traffic hits wide-bodies

International traffic significantly below pre-crisis level

Long-haul traffic, and with it the low utilisation of wide-bodies, continues to suffer from the Corona pandemic. Global international air traffic is recovering only very slowly, as extensive travel restrictions remain one of the main obstacles to a faster recovery of air traffic.

As capacity has not been reduced as fast as demand has collapsed, the passenger load factor declined to 65.1% in 2020 (record level in 2019 of 82.6%). For 2021, IATA expects a slight improvement to 67.3%.

Development of international passenger traffic (revenue passenger-kilometres, RPK)

Percentage change compared to the respective month of 2019

Source: IATA

Some countries have also currently imposed new travel restrictions to limit the spread of new virus variants. Looking ahead, these variants and the associated new restrictions will remain the main risk to air traffic recovery.

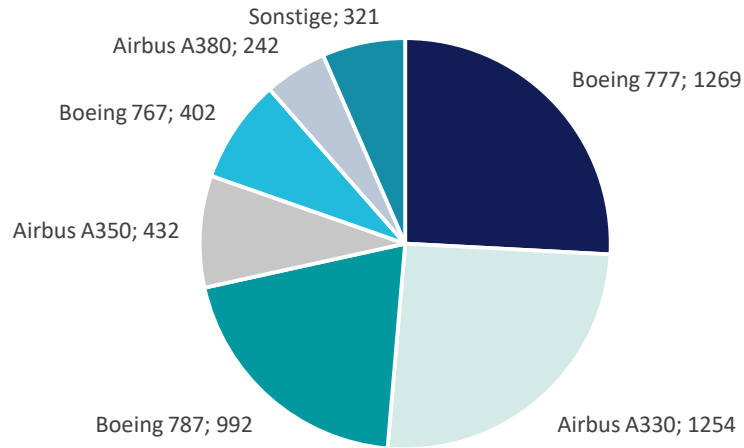
Although passengers' desire to travel remains strong, increased international restrictions and rising COVID cases in some regions are massively limiting the potential recovery in air travel. As a result, the timing and extent of the recovery is primarily dependent on the lifting of current travel restrictions and lockdowns. Previous experience shows that (temporary) relaxations lead to a strong pent-up demand and a substantial recovery. In many cases, the dynamics of this recovery was stronger than initially expected.

Around a third of the wide body fleet currently parked

A fleet of about 4,900 wide-bodies (in service and in storage) is available to airlines mainly for long-haul routes. The Boeing 777 (26%), the Airbus A330 (26%) and the Boeing 787 (20%) account for a large share of the worldwide wide-body fleet. Due to the ongoing COVID 19 pandemic, approximately 1,800 wide-bodies, or 37% of this fleet, were in storage as of 30 June 2021. This represents only a slight reduction in the proportion of aircraft not in service compared to 31.12.2020 (39%). The Airbus A330ceo, the Boeing 777 and the Airbus A380, which has a very large proportion of this fleet parked at approx. 86%, account for the largest part of the parked aircraft.

This list does not include some 110 wide-body passenger aircraft currently used as freighters. These so-called "preighters" are wide-bodies in which airlines have removed all or most of the seats to carry cargo in the cabin instead. The aircraft types most commonly used as preighters are the Boeing 777-300ER and the Airbus A330ceo. When demand on long haul routes picks up, airlines will very likely use these aircraft again in passenger operations. Some of the preighters have already been retrofitted.

Global wide-body passenger fleet



In service and parked, as of 30.06.2021
Source: Cirium

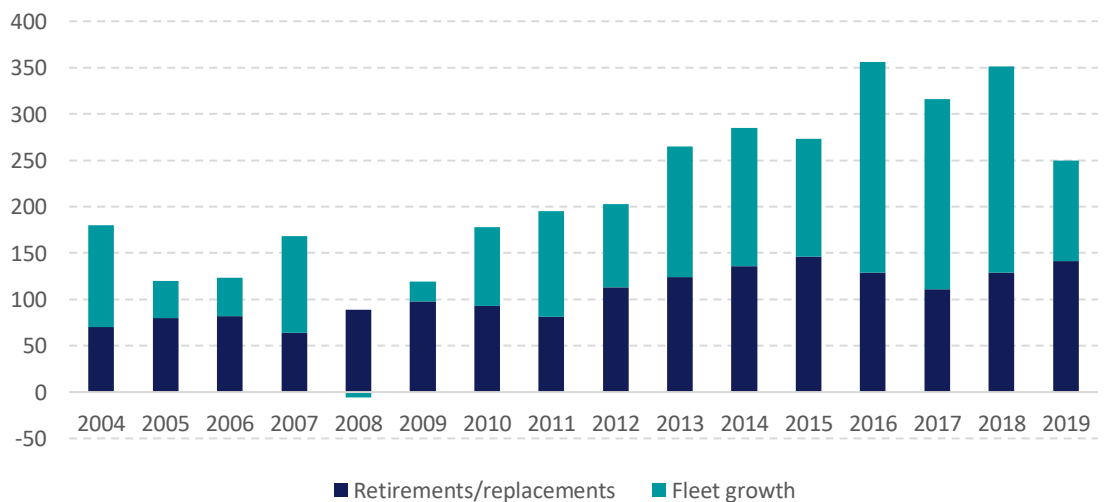
Pre-crisis level to be reached again in 2024

Around 100 wide-bodies are retired annually; fleet grows by over 100 p.a.

In the last 15 years before the pandemic (2005-2019), an average of 108 wide-bodies were retired each year globally. A particularly large number of these aircraft types were permanently removed from service in 2014, 2015 and 2019 (over 130 in each case). In 2020, in the wake of the Corona pandemic and the slump in long-haul traffic, there were 156 wide-bodies retirements.

Despite these retirements, the in-service wide-body fleet grew by an average of 111 aircraft per year between 2005 and 2019. In 2016-2018, the annual increase was even more than 200. Only in 2008, the in-service fleet decreased minimally due to the financial crisis.

Development of the wide-body fleet



Source: Cirium

In the period before the outbreak of the pandemic (2005-2019), an average of 219 new wide bodies were needed per year. Half of this volume was for replacement needs, the other half for growth investments.

In 2020, more than 1,600 wide-bodies were in storage due to the pandemic. About every tenth aircraft was taken out of service permanently. The vast majority are only in storage temporarily and will still be available once intercontinental traffic picks up.

Pre-crisis traffic volume reached again in 2024, capacity expansion ahead

Based on our analysis, we expect air traffic demand (measured in revenue passenger kilometres, RPK) to return to pre-crisis levels in 2024. A rapid recovery in demand next year seems doubtful against the background of the development of the pandemic and the continued existence of extensive travel restrictions. Instead, we forecast a flatter recovery in the period 2021-2023, so that the pre-crisis level will not be reached worldwide until 2024.

Experience so far in the course of the pandemic has shown that airlines try to rebuild capacities quite quickly at the cost of reduced load factors. Demand often only picks up with a time lag. Thus, airlines try to stimulate demand by increasing supply. Against this background, we expect the global fleet to exceed pre-crisis levels as early as 2022. Based on our assumption of the anticipated recovery until 2024, we expect average utilisation (load factor, daily flight hours) to be below the pre-crisis level. For wide-bodies, we forecast that fleet size will reach pre-crisis levels in 2023. The capacity increase should also be supported by the use of cargo capacities in the baggage compartments of long-haul aircraft (belly capacities). As these capacities are currently missing and lead to very high yields in airfreight, there are incentives for airlines to bring long-haul aircraft into service faster than would be expected from pure passenger demand. Additional freight revenue compensate for the lack of passenger revenue.

On the back of this development, passenger load factors will remain below the record level of 82.6% in 2019 over the next years. We forecast that the passenger load factor will not return to a level of around 80% until the middle of the decade and will not have the potential to reach the record level again until the end of the decade. For the next few years, we expect a steady recovery.

In terms of wide-bodies, we estimate that around 5,000 aircraft will be in service in 2023 (30/06/2021: around 3,100 in service and 1,800 in storage). The use of currently parked aircraft will cover the majority of this increase. However, not all currently parked wide-bodies will come back into passenger service. Some of the aircraft in storage will be retired (NORD/LB estimate 2021-2023: approx. 330 retirements). Another part of the parked passenger aircraft are also likely to be converted into freighters.

The growth of the wide-body fleet in 2021 results mainly from the North America region. On the one hand, this aircraft type will also be used for the growing domestic market there. On the other hand, the increase will also result from the gradual restoration of transatlantic routes. From next year onwards, we expect further growth in the wide-body fleet to come from Europe and the Middle East. The Asia/Pacific region is likely to lag behind these developments due to the extensive travel restrictions. However, this refers only to the relative development (percentage change). In absolute terms, the number of wide-bodies returning to service in the Asia/Pacific region will also account for a significant share worldwide. This is because this region uses the most aircraft in this category. Despite many strict travel restrictions, 41% of the wide-body fleet in service worldwide was used in the Asia/Pacific region.

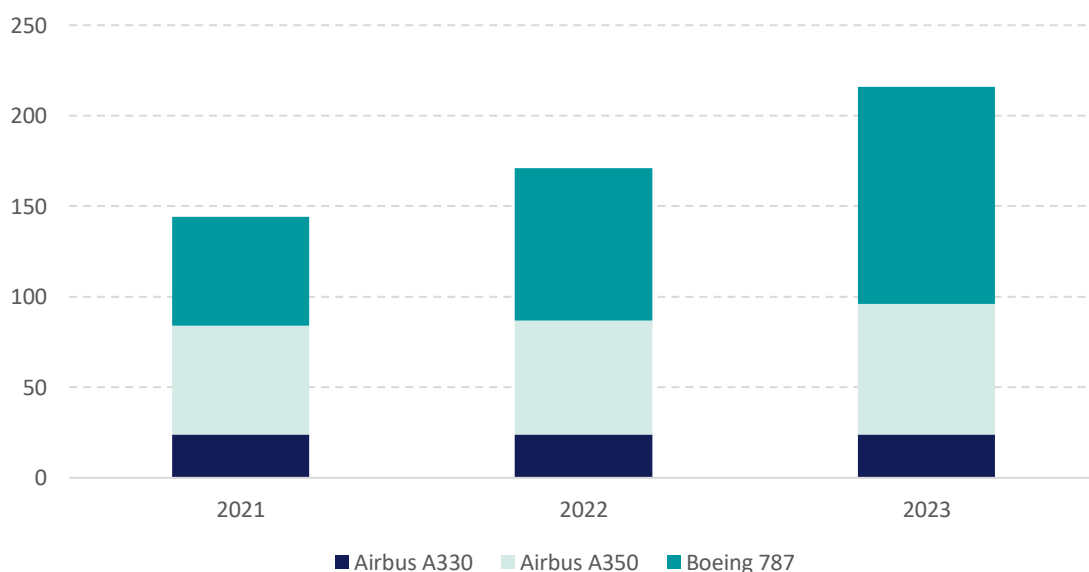
Wide-body production capacities too low in the medium term

Airbus and Boeing production rates below 200 per year in total

Airbus has scaled back production of its wide-bodies in the wake of the COVID 19 pandemic. The manufacturer has reduced the production rate for the Airbus A350 to 5 aircraft per month from 9-10 previously. From autumn 2022, this should be increased to 6 aircraft per month. Airbus currently builds 2 A330s per month (before the pandemic, the plan was 40 per year, equal to 3.3 per month). The manufacturer does not plan a production increase for this model.

Boeing has also scaled back production of the 787 and 777. For the Boeing 787, the monthly production rate is 5 aircraft (14 before the Corona pandemic). Next year, the manufacturer plans to ramp up production to 7 per month and 12 per month from 2023. Currently, Boeing produces 2 Boeing 777 per month. There are currently no plans to increase the rate. In addition, Boeing will initially produce the 777 almost exclusively as a cargo aircraft. The order backlog for the passenger version, the 777-300ER, is only 11 aircraft, although it seems questionable to us whether this will actually be realised due to the customer structure. The entry-into-service of the successor, the 777X, will not take place until the end of 2023 at the earliest.

Planned future production



Source: Airbus, Boeing

If the production increases at Airbus and Boeing are realised as currently planned, both manufacturers will be able to produce a maximum of 216 wide-bodies in 2023. Looking back, however, the annual demand for new wide-bodies in the years 2013-2019 was at least 250 aircraft per year. This means that, assuming a return to earlier development and recovery patterns, the production capacities of both manufacturers are not sufficient to meet normalised demand.

However, the long-term trends of aviation should continue in future. These are essentially:

- Global economic growth
- Emerging middle class
- Growth in the emerging markets

The risk that structural disruptions will override these long-term drivers is limited in our view. It seems conceivable to us that demand for business travel will be lower due to the use of video conferencing. However, in particular airlines in the USA are currently beginning to see a large pent-up demand for business travel. United Airlines does not rule out that the current use of video conferencing may even increase the need to meet in person. We consider the risk that video conferencing will replace a large part of business travel to be low. In our opinion, this also applies to intercontinental routes. Thus, demand for wide-bodies should also return to normal in the medium term.

According to IATA, the world's airlines have accumulated net losses totalling US\$ 126 m in 2020. The forecast for this year is a loss of US\$ 48 m. Most airlines will not return to profitability before 2023.

Despite this development, we do not expect massive limitations for the financing of new aircraft. Due to the ample liquidity available worldwide, airlines also benefit from comparatively favourable financing conditions. At the same time, the sector offers above-average returns compared to other asset classes due to the risk premiums. Competition among leasing companies has also increased significantly again due to low financing costs. At present, narrow-body operators in particular are benefiting from this. However, we expect some leasing companies to become more active again in the long-haul segment when intercontinental traffic recovers significantly. In addition, Airbus and Boeing will try to revive demand for wide-bodies with attractive offers and – if necessary – with customer financing.

Large order book for wide-bodies at Airbus and Boeing

Due to the pandemic, Airbus and Boeing have received very few orders for wide-bodies in 2020. Airbus received orders for two A330s and 21 A350-900s last year. Cancellations of 42 wide-bodies offset this, so net orders were negative at -19. Boeing won orders for 29 787s in 2020. 12 cancellations reduced net orders to a still positive 17. Nevertheless, this level was still very low.

This situation did not change in H1 2021. Airbus won orders for two A330ceo and five A350-900s with five cancellations, so net orders were marginally positive at two. Boeing won orders for 14 787s, 11 777Xs and one 747-8i with 27 cancellations. Net orders thus totalled -1. Since the beginning of the pandemic, there were almost no wide-body orders. On the positive side, however, cancellations were also limited.

Despite the order developments since the beginning of the pandemic, both aircraft manufacturers continue to have a large order backlog for wide-bodies. The backlog for the Airbus A350 stands at 479 and for the Airbus A330 at 293; although in the case of the latter it is worth noting that 78 orders are from Air Asia X and 36 from Iran Air (together 39% of the backlog). At present, it seems very uncertain whether both airlines will take delivery of the aircraft. For the Boeing 787, the order backlog as of 30 June 2021 was 483 aircraft.

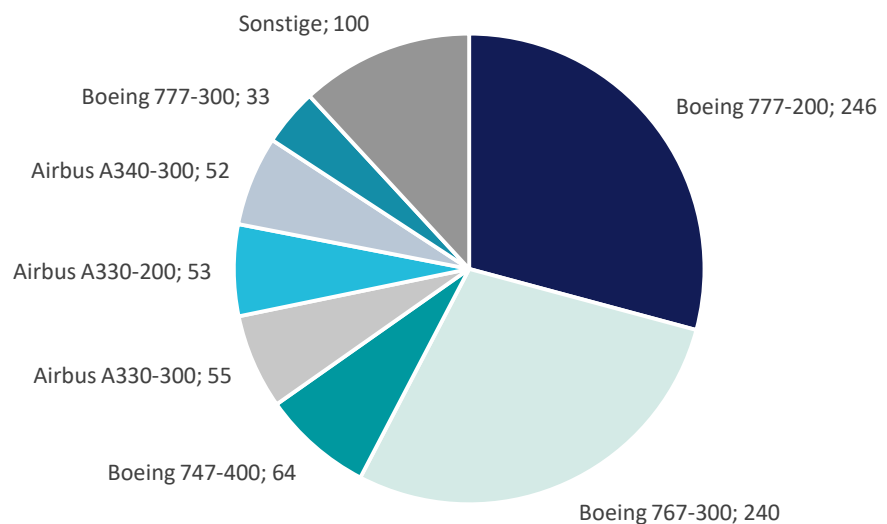
This means that the production capacities of both manufacturers are fully utilised for several years, taking into account the planned production increases. For the Airbus A350 it is 7 years, for the Boeing 787 5 years. The order backlog for the Airbus A330 theoretically lasts for 12 years. However, this is not the result of strong demand, but of a very low production rate and a large proportion of doubtful orders. The Airbus A350 and Boeing 787 order book is well diversified and does not have large dependencies, as is the case with the Airbus A330. For the Boeing 777X, airlines from the Middle East account for 63% of the order book. Emirates is by far the largest customer for this aircraft with a share of 36%. There is thus a very high dependence on this region. At the same time, these airlines benefit from government support.

Replacement of ageing Boeing wide-bodies partly complicated

Replacement needs for large fleets of Boeing 767-300 and 777-200

The average age of the wide-body fleet (parked and in service) is 10.7 years. Approximately 840 aircraft (17% of the entire fleet) are at least 20 years old and will potentially require replacement. The largest share, almost 250 aircraft each, are the Boeing 767-300 and the Boeing 777-200. In addition, more than 200 Airbus A330s (both -200 and -300) are around 20 years old, although the majority are still somewhat younger, so that the need for replacement here is not entirely urgent.

Worldwide passenger wide bodies over 20 years



As of 30.06.2021

Source: Cirium

The current model range of Airbus and Boeing makes the renewal of the ageing Airbus A330ceo fleet easy: With the successor Airbus 330neo and the Boeing 787, two aircraft types are available that are very well suited as successors in terms of capacities. In addition, the Airbus A350-900 is an alternative if larger replacement capacities are required.

Selection of wide-bodies – technical data

	Seat capacity		Maximum range in km	Fuel consumption* per passenger per 100 km	Remarks
	Standard	maximum			
Old types					
Airbus A330-200	210-250	406	13,450	2.5 - 4.9	
Airbus A330-300	250-290	440	11,750	2.7 - 4.7	
Boeing 767-300	218-269	351	10,900	2.3 - 3.8	
Boeing 777-200	305-317	440	15,840	2.9 - 4.3	
Current types					
Airbus A321XLR	180-220	244	7,400	1.9 - 2.5	Narrow-Body
Airbus A330-800neo	220-260	406	15,094	2.3 - 4.2	
Airbus A330-900neo	260-300	440	13,334	2.4 - 4.0	
Airbus A350-900	300-350	440	15,000	2.1 - 3.1	
Airbus A350-1000	350-410	440	16,100	2.2 - 2.8	
Boeing 787-8	248	350	13,530	2.7 - 3.8	
Boeing 787-9	296	408	13,950	2.2 - 3.1	
Boeing 787-10	336	440	11,750	2.4 - 3.2	
Boeing 777-9	426	-	13,500	2.7 - 4.3	Planned entry-into-service end of 2023

*: Estimates, actual consumption may vary depending on individual usage (configuration, load-factors, routes).

Source: Airbus, Boeing, own calculations, various other sources for the old aircraft types.

Airbus A350 actually the best replacement option for Boeing 777-200

For the Boeing 777-200, the potential replacement alternatives are not as obvious as for the Airbus A330. The entry-into-service of the successor, the Boeing 777X, will not take place until the end of 2023 at the earliest. Moreover, the Boeing 777-9 will be introduced first, which, with a standard capacity of 426 seats, is significantly larger than the Boeing 777-200. It is unclear when the smaller version, the Boeing 777-8 with 384 seats, will enter into service. The only appropriate replacements currently available for the Boeing 777-200 are the Airbus A350 (both the -900 and -1000) and the largest variant of the Boeing 787, the 787-10. The latter, however, has less range. This means that the ideal successor for the ageing Boeing 777-200 fleet is the Airbus A350.

No obvious replacement for Boeing 767-300

A replacement investment for the Boeing 767-300, which is in the so-called “middle of the market”, is even more difficult. The Boeing 787-8 and the Airbus A330-800neo would in principle be suitable successors, even if they are somewhat larger in terms of capacity. They also offer significantly more range. However, both models are niche aircraft, as their efficiency is worse than that of the modern Boeing 787-9 and the Airbus A350. In contrast, the narrow-body Airbus A321XLR is a very economical aircraft. However, its capacity and range are lower than those of the Boeing 767-300.

Originally, Boeing wanted to fill the gap left by the Boeing 767 and the 757 with the so-called “NMA”, which should enter into service in 2025. However, Boeing interrupted the development after the grounding of the Boeing 737 Max and the pandemic. It is currently unclear whether Boeing will resume development.

Airlines that need a replacement for the Boeing 767-300 have the following alternatives:

- Boeing 787-8 or Airbus A330-800neo with significant concessions on economics
- Airbus A321XLR with concessions on capacity and range
- Boeing 787-9 or Airbus A330-900neo, but clearly larger
- Initially rejuvenate the fleet by using used Airbus A330-200

There is no ideal solution. The two largest operators of the Boeing 767-300, United Airlines and Delta Air Lines, have placed substantial orders for the Airbus A321neo. Delta Air Lines has also ordered 26 Airbus A330-900neo aircraft. It appears that at least some of the Boeing 767-300 wide-bodies will be replaced by Airbus A321neo narrow-bodies. This may result in slightly lower overall wide-body fleet growth in the future, as part of this fleet is replaced by narrow-bodies.

Two challenges: Capacity shortage during recovery, 767-300 replacement

In summary, two main challenges arise with regard to the development of the wide-body fleet

1. How to meet a resurgent demand for wide-bodies in the face of low production capacity at Airbus and Boeing?
2. What is the replacement for the ageing Boeing 767 fleet?

We assume that Airbus and Boeing will increase their production capacities for wide-bodies again when demand for these aircraft types and passenger demand on long-haul routes increases again. However, a production ramp-up, especially for wide-bodies, requires a lead-time. We expect new orders in particular for the Airbus A330-900neo as a successor to the ageing Airbus A330ceo fleet and for the Airbus A350-1000. The latter is currently still rather a niche model. However, we see potential for this aircraft for two reasons:

1. It is currently the largest available and most mature aircraft and thus the first choice for airlines requiring the largest possible capacities.
2. The Airbus A350-1000 is a very efficient long-haul aircraft, which should be superior to the Boeing 777X in terms of economics - albeit at a lower capacity.

We expect fewer new orders for the Airbus A350-900 and Boeing 787-9 for the time being, due to the large order backlog already in place.

For the renewals of the Boeing 767-300 fleet, we do not see a uniform approach among the airlines. A large part is expected to be renewed by the narrow-body Airbus A321XLR. In some cases, the much larger Airbus A330-900neo and Boeing 787-9 could be replacement alternatives. However, we do not rule out the possibility that second-hand Airbus A330ceo will be used as replacements or that Boeing 767-300s will continue to be used for the time being. A final assessment is only possible when Boeing makes a decision on the future of the "NMA" programme. We consider a revival of demand for the less efficient niche models Airbus A330-800neo and the Boeing 787 8 unlikely.

Appendix

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