FOREWORD

In 2020, Oliver Wyman decided not to publish its Airline Economic Analysis (AEA) — scheduled to come out in March — because a thoughtful analysis of the industry outlook in the face of the then rapidly proliferating COVID-19 pandemic was impossible. The industry was changing before our eyes, and there was no point weighing in before some of the dust had settled. We instead spent much of the year updating our Global Fleet and MRO Market Forecast 2021-2031 that was originally released in January, before COVID-19 had become a pandemic, as a means to provide a timely outlook on the rapidly changing aviation supply and demand landscape.

Not surprisingly, the pandemic also had an impact on the development of the 2021 AEA, which is designed as an in-depth analysis of the previous year’s industry performance. 2020 was a year when the industry was in survival mode. There was no such thing as business as usual. Still, AEA’s data and our analysis will help airlines evaluate the challenges awaiting them over the next several years and decide which strategies might prove most useful.

For our 2021 AEA, we expanded our report to be more global in nature, reflecting the worldwide impact of COVID-19. Found in the Executive Summary, Evolution of a Crisis, and Industry Outlook sections, our analysis outlines the varied pace at which different regions were affected by the virus and will ultimately recover from it. Our broader global examination of the industry is based on multiple sources including the International Air Transport Association, the International Monetary Fund, Oliver Wyman’s Pandemic Navigator, the US Department of Transportation, US Transportation Security Administration, and Airlines Reporting Corporation. In addition, our Economics of the Crisis section focuses on the 2020 performance during the second and third quarters of airlines based in the United States. The data in this section has been gathered from some of the same sources, including the US Department of Transportation, US Transportation Security Administration, Airlines Reporting Corporation, and others noted in the appendix. We typically exclude the US DOT’s transports category, which focuses largely on regional operations for full-service carriers, but this year we are including it where possible as it had an impact on the overall performance of the airlines.

Economics of the Crisis is built around data from 11 participating US airlines, which we have divided into three categories — network, value, and ultra low-cost. The categories are based on similarities in business model as well as financial and operational characteristics. For example, carriers in the network group are full-service carriers, and they traditionally have the highest cost structure and produced the highest unit revenue. Ultra low-cost carriers (ULCC) have the lowest. Value airlines are a hybrid of full-service and low-cost.

Also, among the metrics used to determine categories are domestic revenue per available seat mile (RASM) and cost per available seat mile (CASM). On an operational basis, the network group now includes only those carriers with a large international presence in all three major world regions — Atlantic, Latin America, and Asia Pacific.
Exhibit 1: Report reflects data collected from 11 airlines

<table>
<thead>
<tr>
<th>Network Carriers</th>
<th>Value Carriers</th>
<th>Ultra Low-Cost Carriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>American</td>
<td>Alaska</td>
<td>Allegiant</td>
</tr>
<tr>
<td>Delta</td>
<td>Hawaiian</td>
<td>Frontier</td>
</tr>
<tr>
<td>United</td>
<td>JetBlue</td>
<td>Spirit</td>
</tr>
<tr>
<td></td>
<td>Southwest</td>
<td>Sun Country</td>
</tr>
</tbody>
</table>

Note: Sun Country was added for the 2021 report

The 2021 AEA is a chronicle of the impact of COVID-19 on the aviation industry, a historic crisis that has and will continue to reshape it for the next decade. As a companion piece, we recommend Oliver Wyman’s Global Fleet and MRO Market Forecast 2021–2031 and the updates to it that came out throughout 2020, which detail the pandemic’s impact on the aerospace industry, the global fleet, and the industry’s aftermarket.

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HOW COVID IS CHANGING AIRLINES

Oliver Wyman's Airline Economic Analysis was initially designed to explore the economic fundamentals that drive airline profitability. In 2021, it has become a study of the forces that are undermining it. Thanks to an almost complete shutdown of both business and international travel, the industry faced substantial losses in 2020, and this trend will continue for much, if not all, of 2021.

In fact, it is fair to say that no crisis in modern times has shattered the aviation business model as much as the coronavirus pandemic. That's because no previous crisis has disrupted corporate and international travel as much as COVID-19. Along with causing a depressed market for domestic leisure travel, the pandemic has managed to wipe out two decades of demand growth in a few months.

Because of COVID-19, almost three-quarters of companies worldwide canceled or suspended domestic travel, and 93 percent canceled or suspended international travel, according to the Global Business Travel Association. Corporate bookings plummeted 85 percent in 2020 and have remained at that level in 2021, based on Airlines Reporting Corporation data. These decisions by companies to keep executives off the road are particularly painful for airlines because business from corporate fliers is their most profitable market segment.

In a normal year, business travel accounts for more than half of airline earnings and nearly a third of total airline revenue in major economies like the United States. Yet high-yield passengers such as executives account for only nine percent of the total flying public. The average high-yield booking produces 4.3 times more revenue than a typical leisure booking.

LEISURE RULES

As a result, the industry has become dependent on leisure travelers who, despite the pandemic, began to take trips again in the second half of 2020. With these lower-yielding travelers making up a higher portion of a decimated demand, airlines were doomed to see a drop in revenue and substantial losses.

As we were completing this report, the International Air Transport Association (IATA) was predicting that the global aviation industry would not be cash positive until 2022, despite indications from a few airlines that their core operations could be cash positive sometime this year. In November, the association said it expects carrier losses to be an additional $38.7 billion cumulatively in 2021. That's after losing $118.5 billion in 2020.

In the US, except for spikes at major holidays, passenger traffic stayed around 40 percent of 2019 levels through most of the second half of 2020, based on traveler checkpoint data from the Transportation Security Administration (TSA). It was still only a little over 40 percent for the first two months of 2021.

This tepid demand for air travel also affected fares, particularly fares to destinations popular with business travelers. Looking at 20 US destinations —10 predominantly business and 10 leisure — we found fares in heavily business-oriented markets dropped 33 percent in the pandemic year of 2020 versus 12 percent in 2009 — a year when the US was rocked by recession, a global financial crisis, and the H1N1 flu pandemic. Leisure fares, on the other hand, fell 16 percent by the end of last year versus 13 percent during 2009. This disparity underscores the disproportionate impact the absence of higher-paying business travelers has had.
EXECUTIVE SUMMARY

FULL-SERVICE DISADVANTAGE

In event-triggered downturns of the past, such as 9/11 and the global financial crisis of 2008-2009, low-cost airlines had an advantage because of their lower operating costs. For those crises, there were similar declines in revenue per available seat mile (RASM) — a benchmark metric used to compare airline revenue performance — across the various classes of carriers.

That wasn’t true for COVID-19. Where in the past low-cost carriers only had an operating cost advantage during crises, they now also have a revenue advantage because their primary market — leisure customers — has recovered faster than the business travel market. Our analysis of US Department of Transportation data reveals RASM for full-service airlines fell 50 percent year-over-year in 2020’s second quarter, probably the darkest period for US carriers. Meanwhile, the RASM for low-cost airlines fell 23 percent in the same three months.

The third quarter’s RASM brought the performance of the two airline groups closer together, with full-service carriers declining 45 percent and low-cost carriers down 38 percent. The cumulative declines for the six months are 47 percent and 34 percent, respectively.

STAYING NEAR HOME

Another missing component from the travel market has been the international segment. Like business travel, the international market dried up because of the various national restrictions preventing or discouraging cross-border trips and fears consumers harbored of having trips canceled or getting stuck in a foreign country. In two global Traveler Sentiment Surveys conducted by Oliver Wyman in 2020 involving nine countries, respondents said their first trips once pandemic restrictions lifted would still most likely be domestic to see family and friends.

The evaporation of international travel hit the airline industries of some regions very hard, particularly those outside the US where 60 percent of travel is domestic. In Europe, the Middle East, and Africa, only 10 percent of air travel is domestic.

Even in Asia, where nations such as China, South Korea, and Vietnam managed to contain the virus in a matter of a few months, international traffic is down more than 70 percent, primarily because of regulations prohibiting cross-border travel. Despite the fact that airlines in these three countries saw domestic demand recover to 2019 levels in 2020, they felt the loss of international traffic. In China, for instance, international travel makes up 45 percent of its aviation market.

For the second half of 2020, global domestic capacity — measured in available seat miles — was down 34 percent while international was down a stunning 75 percent. Besides sending a lot of widebody aircraft into storage and reducing long-term demand for these larger, long-haul planes over the decade, the loss of international traffic killed the tourism in cities like New York and Paris as well as in some developing economies dependent on spending by visitors. That said, the international leisure segment is likely to recover faster than business, as other countries catch up with the US on vaccinations.
INCREASED COMPETITION

In response to the disruption of two important market segments, the bigger, full-service carriers now find themselves in competition with low-cost carriers for price-sensitive domestic travelers and are slowly taking on some of the characteristics of the upper rung of low-cost carriers. Consequently, passengers will likely see more similarity in the fare structure of the two classes in both economy and premium cabins.

Airlines have been unbundling fares in premium cabins to cater to well-off travelers not flying for business but looking to social distance in roomier business cabins. Led by US carriers, a handful of carriers in the Middle East, Europe, and Asia are also pursuing this strategy.

Besides dwindling revenue, airlines are struggling with cutting costs — often pursuing strategies that do not always produce the intended result. During the 2009 economic recession and H1N1 the same year, cost per available seat mile (CASM) increased 10 to 15 percent with every 10 percent reduction in capacity. Why? Unless airlines are running a very effective cost transformation program, operating costs will rarely decrease proportionally with cuts in capacity.

As an example, look at labor costs. Especially for full-service airlines, furloughing workers will often leave payrolls full of highly paid employees with lots of seniority. Take the case of cost-control programs that match expenses to volatile ups and downs in demand: They may ease cashflow pressures but often raise airline unit costs in the short run.

While all types of carriers will face shrinking margins for the next several years, pressure will be the greatest on full-service carriers and international carriers. With the market unable to quickly make up for lost growth, these network airlines will be increasingly forced to shift their strategies toward those of value carriers by appealing to more price-sensitive customers looking for deals.

CHANGING SCHEDULES

To cut overhead and improve efficiency, airlines will have to adjust schedules, reduce unprofitable routes, and shrink the overall size of networks. Behind the scenes, flight hours also need to be adjusted to better reflect the less congested COVID-19 environment and reduce wasted expense. In a normal year, a full-service or legacy carrier may schedule 14,000 flight, or block, hours per day. These drive a lot of operating costs involving crews, fuel, and maintenance.

Typically, most carriers produce, on average, one percent of excess block time. Following 9/11 and during the financial meltdown, that excess time doubled. The reason: As flights operated faster than planned in a less congested, lower-demand environment, ground time made up of unneeded block hours increased. Anticipating and accounting for these effects is an area where the industry has historically left opportunity on the table, failing to eliminate unnecessary cushion time. One percentage point of excess time for an average full-service carrier can easily represent an additional $250 million in annualized cost in a more normal market.
Even so, the aviation industry has historically struggled to make shrinking operations work to its financial benefit. For example, as US carriers slashed capacity during the 2008–2009 global economic crisis and H1N1, their CASM — another benchmark metric — typically increased 10 to 15 percent for every capacity reduction of 10 percent. That's because airlines have high fixed costs and overhead that can't be cut at the same rate as capacity.

**VACCINE AND STIMULUS**

Of course, with recent news from the Biden administration about increased availability of vaccines and passage of the $1.9 trillion American Rescue Plan Act, the outlooks for aviation and the national economy are gradually brightening. On March 15, Oliver Wyman's cross-practice team studying COVID-19 issued an update, predicting that herd immunity could be reached in most of the US by early summer — the second half of June or the beginning of July. That's three to six weeks sooner than we were predicting in January. The new forecast is based on analysis of health data by our Pandemic Navigator tool.

This projection was based on the rapidly increasing distribution of vaccines. Where today the US is handing out more than two million doses a day, it is likely that number will rise to over three million with the additional funds available through the recently passed stimulus and relief package. The Northeast will be one of the regions to reach immunity first, which is fitting as it was the region to be hit hardest in the early days of the pandemic. If the progression toward herd immunity unfolds as expected, then the US could see a relatively rapid pickup in demand for domestic travel sometime this summer. Of course, our calculations assume no big surprises, such as the emergence of variants resistant to the vaccines or a short-lived immunity from the vaccines that could cause COVID-19 to linger — both of which remain risks.

China and a few other nations in Asia already saw that trend, even without a vaccine, thanks to aggressive COVID-19 containment efforts. For example, China's domestic air travel recovered to 2019 levels in November. The return of international travel is also a question mark, given the plethora of travel restrictions put into place at the height of the pandemic. The sector will take longer to recover than domestic for that reason and may look different as “vaccine passports” and other protocols are likely to be adopted in some places to facilitate a return to normality. We may also see the development of bilateral agreements to permit travel between nations where there has been mass vaccination or infection rates are minimal.

While still in the thick of the pandemic, it's hard to assess which impacts will leave permanent scars. The disruption in business travel isn't expected to fully reverse anytime soon, given the existence of mobility substitutes like videoconferencing that provide an alternative to travel and commuting. This is particularly true for internal company travel. As long as these substitutes persist to any substantial degree, the business travel market will constitute the biggest drag on airline earnings for the foreseeable future — one that will force airlines to keep tweaking their business model to compensate. But even beyond corporate travel, this kind of shock will not be forgotten soon.
THE EVOLUTION OF A CRISIS
UNPRECEDENTED DISRUPTION

The impact of COVID-19 on the aviation industry is unprecedented and devastating. Record losses in revenue, earnings, and demand will fundamentally change aviation — from airlines to aerospace to the aftermarket — just as it has changed almost every aspect of life around the world. While COVID-19 may well be contained by the new vaccines, it is unlikely that travel and the rest of economic life will ever return to exactly what they were like before the pandemic.

Although we now look on 2020 as one of the deadliest years in modern times with close to three million people dying globally, the year began for airlines with an outlook for more of the growth they had seen for the past five, albeit slower. Talk was of potential pilot shortages and not enough new aircraft production after the grounding of the Boeing 737 MAX the year before. Through January, the numbers of passengers and departures replicated 2019; on some days, they surpassed them.

But the beginnings of the pandemic were already being felt, with reports of the first cases outside of China, where the virus began. On January 30, 2020, there were 98 cases and no deaths in 18 countries outside China, including the United States. In mid-February, the director-general of the World Health Organization (WHO) told national governments that they must see COVID-19 as an urgent, impending crisis and increase their preparedness. By the beginning of March, there was a shortage of personal protective gear. By March 7, the WHO reported 100,000 cases worldwide. Four days later, on March 11, the health organization labeled COVID-19 a pandemic. From there, it was like falling off a cliff for nations, particularly the US, in terms of new cases, deaths, and economic destruction.

IMPACT ON AIRLINES

For global airlines, the experience was similar. By March, thousands of flights were being canceled daily or flying close to empty. Thousands of planes were being grounded, sent to storage, or retired prematurely. By May 15, worldwide departures hit their lowest point — 70.4 percent below 2019 levels. At that point, only 5.6 percent of 2020 COVID-19 cases had been reported.

Despite COVID-19 case counts that would skyrocket in the next months, worldwide departures began to trend upward after mid-May as airlines found their equilibrium. By mid-August, they were down 48 percent versus 2019.

In the US, one of the worst COVID-19 hotspots over the summer and fall, case counts as well as the number of deaths were exponentially increasing. Part of the reason for the spike was an effort to reopen the economy.

People worldwide also wanted to travel again, particularly to see friends and family, as they told our May Traveler Sentiment Survey. Over Memorial Day, Fourth of July, and Labor Day weekends, there were increases in traffic, and with them, more COVID-19 cases and deaths. Between April and September, domestic departures rose 62 percent, but off a very low base. Departures hit a low in May of 67 percent below 2019 levels.
In other parts of the globe like Europe, the story was the same but more dramatic. Europe was hit by COVID-19 earlier than the US, and by April 2020, European domestic departures had fallen 82 percent from the beginning of the year. In the US, domestic departures were down 48 percent that month. Between April and September, European domestic departures increased just as they did in the US, but at a much greater rate of 266 percent. Part of the scale of the recovery reflects the size of the initial decline.

**DOMESTIC HOLDS UP BETTER**

According to the International Air Transport Association (IATA), global airline demand when measured using the benchmark metric, revenue passenger kilometers (RPKs), declined 65.9 percent in 2020 compared with 2019 totals. International air travel, hindered by stringent travel restrictions, fell 75.6 percent for the year. Domestic air travel demand, on the other hand, was 48.8 percent below 2019.

This trend toward domestic travel recovery particularly helped US airlines because more than 60 percent of US air travel is domestic in a normal year. In Europe, where people tend to take trains when traveling domestically and even between nearby nations, only 10 percent of air travel is domestic in a normal year. In August, US domestic revenue passenger miles were at 31 percent of 2019 levels while international was at nine percent, according to data from the US DOT.
The Asia Pacific region had a slightly below average decline in RPKs for the year — off by 61.9 percent. The RPK totals were bolstered by strong domestic demand in China, a large country like the US that benefits from a bigger domestic travel market than in European nations. Domestic RPKs in China fell only 30.8 percent at its lowest.

Supporting that performance was China’s ability to contain the virus quickly using economic lockdowns, quarantine of infected individuals, mandated mask-wearing, and extensive early testing. By November, Chinese airlines had recovered to 2019 levels; most other regions are probably close to two years away from full recovery.

Airlines in the Middle East were the hardest hit in 2020, with RPKs declining 72.2 percent over 2019. Like Europe, that drop reflects the relatively small domestic travel market.

<table>
<thead>
<tr>
<th>Total Market</th>
<th>RPK</th>
<th>ASK</th>
<th>% point drop in PLF</th>
<th>PLF (LEVEL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia Pacific</td>
<td>-61.9%</td>
<td>-53.9%</td>
<td>-14.3%</td>
<td>67.5%</td>
</tr>
<tr>
<td>Latin America</td>
<td>-62.1%</td>
<td>-58.3%</td>
<td>-7.7%</td>
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</tr>
<tr>
<td>North America</td>
<td>-65.2%</td>
<td>-50.2%</td>
<td>-25.6%</td>
<td>59.2%</td>
</tr>
<tr>
<td>Africa</td>
<td>-68.8%</td>
<td>-61.0%</td>
<td>-14.4%</td>
<td>57.4%</td>
</tr>
<tr>
<td>Europe</td>
<td>-69.9%</td>
<td>-62.1%</td>
<td>-17.4%</td>
<td>67.8%</td>
</tr>
<tr>
<td>Middle East</td>
<td>-72.2%</td>
<td>-63.3%</td>
<td>-18.5%</td>
<td>57.6%</td>
</tr>
</tbody>
</table>

Note: RPK stands for revenue passenger kilometres; ASK stands for available seat kilometres; PLF stands for passenger load factor
Source: International Air Transport Association

THE LAST THREE MONTHS OF 2020

The fourth quarter was a hair-raising three months for the US. In one month — November — new coronavirus cases doubled to four million from the previous record 1.9 million set in October. And that only captured part of the spike from holiday travel, which began a few days before Thanksgiving and continued through the end of the year, despite pleas from the Centers for Disease Control and Prevention that Americans needed to stay home.

The bulk of the travel was done by car, but even at TSA checkpoints — the best indicator of air travel demand in the US — the passenger counts were rising around the holidays. Just before Christmas, the counts were only 39 percent below 2019 levels — one of the smallest declines seen in 2020. By January and February, after the COVID-19 spike that followed holiday visits, passenger counts dropped again to 62 percent below 2019 levels.
Airlines in North America also reported the smallest reductions in capacity, with available seat miles falling 50.2 percent in 2020 when compared with 2019. The smaller reductions in capacity came at the expense of load factor, which fell 25.6 percentage points from 2019 levels to 59.2 percent of seats filled.

Worldwide airlines have added domestic capacity at a much greater rate than international capacity as travel between countries remains relatively restricted. Scheduled capacity reached a low point during May 2020. At that point, domestic available seat miles were 61 percent below 2019 and international capacity was 90 percent below 2019.

By February 2021, domestic capacity was 32 percent below 2019, while international capacity was down 75 percent. As of February 2021, schedule data indicates US airlines might be getting more aggressive about adding back international capacity, anticipating a return foreign travel with the proliferation of vaccines. However, if past precedents hold, the advance schedules will likely be reduced the closer they get to departure dates, given how airlines have been managing close-in capacity for the past 12 months.
The severity of the worldwide disruption around COVID-19 comes into focus when compared with earlier global crises. Early in the pandemic, there were comparisons made to events like the 9/11 terrorist attacks and the 2008–2009 global financial crisis, which overlapped with the H1N1 flu outbreak. These events also temporarily grounded chunks of the global fleet and caused what we characterized at the time as dramatic drops in demand. Based on the industry's experience around such tragedies, there was initial hope that recovery would be more a matter of a year, not multiple years. However, the depth and length of the pandemic and its aftermath will make it a historic event, and recovery from it will be longer and more challenging for airlines than any of those past crises.

Compare the depth of the previous crises to COVID-19: The month after 9/11, industry capacity in the US fell 15 percent compared with the prior year, its lowest point during that event. Ultimately, it took the industry 12 months to recover and overcome people's increased fear of terrorism.

During the global financial crisis and H1N1 pandemic in the US, industry capacity hit its lowest point at 13 percent below the prior year. While the recovery from that also took 12 months, the full duration of the event — which included one of the longest US recessions ever, the global financial crisis, and the pandemic — took 24 months.

The low point for aviation capacity with COVID-19 was in May 2020 when it was down 83 percent — four to six times worse than in other previous crises. And the recovery and duration remain uncertain. If we start from January when the novel coronavirus was identified, this pandemic has already lasted more than 14 months. With US capacity at about 40 percent as of March, it’s safe to say recovery isn't around the corner. Given current forecasts for full recovery of all market segments, COVID-19 will have a duration somewhere in the neighborhood of three years or more.
The crisis around the 2002–2003 SARS outbreak resembled our current pandemic as it was an airborne coronavirus spread by droplets. At the time, health experts said it had “the clear capacity to spread along the routes of international air travel,” which it did infecting people in two dozen countries. But unlike COVID-19, only 8,000 people became sick and just short of 800 died. Most of victims were concentrated in China. Hong Kong was particularly affected. At its worst, based on data from the Hong Kong Civil Aviation Department, commercial flights to and from Hong Kong were down 49 percent in April. By July, the World Health Organization declared the virus contained.

**Exhibit 6: How US air travel has been affected by global crises**

Industry capacity change in available seat miles from month prior to crisis

![Graph showing industry capacity change in available seat miles from month prior to crisis](image)

- **9/11 terror attacks**
- **Global economic crisis and H1N1 pandemic**
- **COVID-19 pandemic**

Note: Monthly ASM index versus same month in baseline pre-event period; Month zero is month prior to event; all carriers to/from/within US
Source: PlaneStats.com / T100

The crisis around the 2003 SARS outbreak is harder to compare, because unlike the other disruptive events the effects of this coronavirus were contained to China and particularly Hong Kong. At its worst, based on data from the Hong Kong Civil Aviation Department, industry flights to and from Hong Kong were down 49 percent in April. By July, the WHO declared the virus contained.

**SPEEDY VACCINATION**

Significant worldwide recovery will likely hinge on effective containment and immunization. In the US, President Joe Biden currently estimates that there will be enough vaccine in supply for every adult American to receive two doses by the end of May, and he predicted more than 200 million doses would be distributed in his first 100 days.
It’s promising news, given the inconsistency of enforcement of pandemic guidelines and the nation’s difficulty containing the disease until now. In contrast, China managed to contain the disease in less than a year and domestic air travel recovered to 2019 levels by the end of November 2020.

Exhibit 7: China recovered by containing COVID-19, even before vaccine, while the US didn’t

Based on scheduled available seat miles (ASMs) for both domestic and international services, the Pacific region had the largest decline during 2020, 65.6 percent, as strict travel restrictions to many island-nations caused a dramatic drop in international travel. It was followed by Europe at 60 percent. Central America had the smallest decline for the year at 44.6 percent, in large part because people continued to travel to Mexico, where there were fewer COVID-19 restrictions.

Domestic capacity reductions worldwide have been significantly smaller, with ASMs declining 30.9 percent in 2020 versus 2019. Airlines in Asia reported the smallest domestic decline in ASMs, down only 16.6 percent. The extremely low domestic reduction can be attributed to China’s rapid containment of COVID-19.
It is interesting to note that there are significant variances within major world regions. In North America, the less stringent approach taken by the US ended up reducing overall capacity 48.2 percent. Conversely, Canada’s more aggressive approach to containing the pandemic resulted in a decline of 62.1 percent.

Exhibit 8: Capacity reductions by region in available seat miles, 2020 versus 2019

All services (domestic + international)

<table>
<thead>
<tr>
<th>Region</th>
<th>Capacity Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>-46.8%</td>
</tr>
<tr>
<td>Oceania</td>
<td>-48.2%</td>
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<td>Europe</td>
<td>-60.0%</td>
</tr>
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<td>US</td>
<td>-58.6%</td>
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<td>South America</td>
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<td>Central America</td>
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<tr>
<td>Caribbean</td>
<td>-50.7%</td>
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</table>

World Total: -52.5%

Domestic

<table>
<thead>
<tr>
<th>Region</th>
<th>Capacity Reduction</th>
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<tbody>
<tr>
<td>Asia</td>
<td>-16.6%</td>
</tr>
<tr>
<td>Oceania</td>
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<td>US</td>
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<td>Canada</td>
<td>-29.9%</td>
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<td>Middle East</td>
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<td>Africa</td>
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<tr>
<td>South America</td>
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<tr>
<td>Central America</td>
<td>-45.4%</td>
</tr>
<tr>
<td>Caribbean</td>
<td>-45.4%</td>
</tr>
</tbody>
</table>

World Total: -30.9%

Notes: Domestic stands for aviation capacity within individual countries; Latin America includes Mexico
Source: OAG schedule data via PlaneStats.com

Reductions in capacity have also varied by type of airline. Overall, full-service airlines, which we refer to as network carriers in this report, have made larger capacity reductions, which makes sense given their reliance on business travel and international travel — two of the hardest hit market segments.

Low-cost airlines and ultra low-cost carriers (ULCCs) in North America reduced ASMs 38.2 percent during 2020. North American network carriers reduced capacity 53 percent.
Low-cost carriers in Asia Pacific reduced domestic capacity at a much greater rate than their network counterparts. In every other major world region, low-cost carriers had smaller overall capacity reductions than network carriers. The lowest-cost carrier group typically relies more heavily on domestic and leisure traffic than do network or value airlines, which during COVID-19 was an advantage.

**Exhibit 9: Available seat mile reductions by carrier type, 2020 versus 2019**

<table>
<thead>
<tr>
<th>Region</th>
<th>Domestic</th>
<th>World total</th>
<th>Asia/Oceania</th>
<th>Europe</th>
<th>Latin America</th>
<th>Africa/Middle East</th>
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<tr>
<td></td>
<td></td>
<td>International</td>
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<tr>
<td>Domestic</td>
<td>-32%</td>
<td>-55%</td>
<td>-1.17%</td>
<td>-30%</td>
<td>-24%</td>
<td>-16%</td>
</tr>
<tr>
<td>International</td>
<td>-63%</td>
<td>-58%</td>
<td>-57%</td>
<td>-53%</td>
<td>-60%</td>
<td>-59%</td>
</tr>
<tr>
<td>System</td>
<td>-47%</td>
<td>-44%</td>
<td>-55%</td>
<td>-51%</td>
<td>-55%</td>
<td>-45%</td>
</tr>
</tbody>
</table>

35% of total traffic is domestic

42% of total traffic is domestic

60% of total traffic is domestic

10% of total traffic is domestic

36% of total traffic is domestic

10% of total traffic is domestic

**Note:** LCC stands for low-cost carrier; ULCC stands for ultra low-cost carrier. Latin America includes Mexico. Other represents all other scheduled airlines such as scheduled charter, independent regionals and small operators. Domestic stands for aviation capacity within individual countries. Source: OAG schedule data via PlaneStats.com.

As airlines throughout the world have cut capacity, they have also reduced regional partner operations at a slightly higher rate. These operations are in large part flown by regional airlines on behalf of a mainline carrier.

Global airlines shrank regional partner departures 45.3 percent, compared with 42 percent on their own departures. ASM reductions were higher for the marketing carriers as they typically operate the longer haul flights on larger aircraft, which have been disproportionately impacted by the pandemic.
SCHEDULING DURING A CRISIS

As the pandemic spread, airline scheduling departments scrambled to cope with the drop in demand. Most planners found themselves in uncharted territory and ended up having to cancel scheduled flights on short notice.

Exhibit 11: US domestic completion rate, 2020 versus 2019

Note: Completion rate stands for percent of scheduled flights flown
Source: US Department of Transportation on-time performance data via PlaneStats.com
In the US, airlines completed 83 percent of scheduled domestic flights during March and only 58.5 percent during April — one of the worst months for planning departments. Typically, pre-COVID, airlines would cancel only a tiny percentage of scheduled flights.

Global airlines have been working overtime to match capacity to demand and have had to reduce capacity over and over again as travel dates get closer. For example, when carriers were planning for the week of June 15 through 21 last year, they allocated 78.6 billion ASMs when they first put together the schedule on May 13. By June 10, the ASMs for that week had been cut to just 34.8 billion, or 55.7 percent, of the original plan.

While these unprecedented reductions have continued, planners at airlines are getting significantly better at anticipating COVID-19 and are adapting to the chaos. Between November 11 and December 9, capacity for the schedules for the week of December 12 through 21 only had to be reduced 9.6 percent.

**Exhibit 12: How airline scheduled available seat miles declined as departure dates approached for the week of June 15–21**

<table>
<thead>
<tr>
<th>Date</th>
<th>Available Seat Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 13, 2020</td>
<td>78.6</td>
</tr>
<tr>
<td>May 20, 2020</td>
<td>70.3</td>
</tr>
<tr>
<td>May 27, 2020</td>
<td>58.3</td>
</tr>
<tr>
<td>June 3, 2020</td>
<td>43.1</td>
</tr>
<tr>
<td>June 10, 2020</td>
<td>34.8</td>
</tr>
</tbody>
</table>

The date of release of schedule revisions

Source: OAG schedule data via PlaneStats.com

**CHANGES IN THE GLOBAL FLEET**

At its nadir in May 2020, the global in-service fleet was reduced to a mere 13,000 aircraft — less than half of where it stood at the beginning of the year. Over the summer, as domestic and leisure travel slowly recovered, airlines began to put aircraft back into service at a pace faster than traffic was returning. But a resurgence of COVID-19 toward the end of summer stalled the recovery. As the winter months approached, it became clear that the crisis was worsening and would last well into this year. In response, the industry pulled back on the pace at which aircraft were returning to service.
For aerospace manufacturers and their suppliers, 2020 has ended up as their roughest year ever, with production down 55 percent from 2019 and deliveries at a standstill for several months. This inventory glut was aggravated by 737 MAX aircraft that had been grounded by regulators the year before and were now sitting in storage or with the manufacturer — built but not delivered and in some cases not spoken for.

Exhibit 13: Monthly in-service fleet, 2019–2022

When drilling down on aircraft class, the share of narrowbodies in the global fleet will increase over the next decade at the expense of widebodies. In just one year — from 2020 to 2021 — the large increase in widebody retirements and vast numbers of aircraft in storage have pushed up the share of narrowbodies two percentage points — significantly more change than in a typical year. The trend, already evident before COVID-19, was exacerbated by the pandemic and the decline in international travel it caused. As the second-largest class, widebodies have maintained a consistent fleet share of close to 20 percent over the past decade. Looking ahead, that share is expected to drop almost two percentage points over the next decade, with average annual growth of just 1.6 percent anticipated for the widebody fleet between 2021 and 2031.

Within the narrowbody class, the post-COVID-19 environment could lead to a resurgence of smaller models. With an industrywide focus on improving load factors and more modest expansion of operations, smaller narrowbodies become more attractive options. The Airbus A220, with 100 to 140 seats depending on the model, is positioned well for this market.

The trend offers a unique opportunity for Chinese manufacturer COMAC as its small narrowbody, the C919, also provides the same range of seating. It may become a popular alternative in Asia, considering the reduced production rates of the 737 MAX and A320neo. The strategy makes economic sense in periods of low demand as a cheaper way to maintain valuable airport route slots. The one caveat: If demand comes back, some airlines may regret not having the 200-passenger narrowbody instead of the smaller one.
Exhibit 14: Global fleet forecast by aircraft class, 2020–2031

<table>
<thead>
<tr>
<th>Number of aircraft</th>
<th>2019</th>
<th>2026</th>
<th>2031</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAGR 2019-2026</td>
<td>2.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAGR 2026-2031</td>
<td>2.8%</td>
<td>0.5%</td>
<td>-0.4%</td>
</tr>
<tr>
<td>CAGR 2019-2031</td>
<td>2.5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Fleet sizes as of Jan. 1; CAGR stands for compound annual growth rate
Source: Oliver Wyman analysis

For more information, please go to Oliver Wyman's Global Fleet and MRO Market Forecast 2021–2031.

AIRLINE EMPLOYMENT DECLINES

Prior to the pandemic, IATA had estimated that 65 million jobs worldwide were dependent upon air travel. It is difficult to say how many of these jobs have been lost already, but it certainly must be a large chunk if one considers the losses the hospitality industry has suffered from the drop in tourism and business travel. From hotels to restaurants to cab drivers, this sector has been hit by COVID-19 as hard as airlines.

In the US, airline employment at passenger and cargo airlines was down a cumulative 6.8 percent at the end of December 2020 versus the same month in 2019. That doesn’t sound like much, but the much more painful drop of 12 percent in employment at passenger carriers was offset by an increase in cargo carrier employment of 9.4 percent. While the US and Africa reported gains in cargo traffic in 2020, that wasn’t the case in most of the world.

US network carriers reduced employment by 21 percent, and value airlines cut eight percent. Ultra low-cost carriers increased employment 0.8 percent during 2020. These numbers are significantly lower than they would have been because of subsidies and loans provided under the federal Coronavirus Aid, Relief, and Economic Security Act (CARES Act) and the Paycheck Protection Program.
Exhibit 15: How the pandemic affected airline employment, as of December 2020

Percent changes in total employment by airline group

<table>
<thead>
<tr>
<th>Airline Group</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>-21.1%</td>
</tr>
<tr>
<td>Value</td>
<td>-8.2%</td>
</tr>
<tr>
<td>ULCC</td>
<td>-0.8%</td>
</tr>
<tr>
<td>Commuter</td>
<td>-5.7%</td>
</tr>
<tr>
<td>Cargo</td>
<td>-9.4%</td>
</tr>
</tbody>
</table>

Note: ULCC stands for ultra low-cost carrier
Source: US Department of Transportation
A YEAR OF LOSSES

2020 was a historically unprofitable year for global airlines, even in the US, where consolidation had helped the industry enjoy five of the most commercially successful years in its history. In the first months of COVID-19, airlines were forced to cancel flights and ground aircraft as leisure and business travelers, scared of catching the virus, began sheltering at home.

During the second and third quarters of 2020, the 11 airlines in our study suffered a cumulative operating loss of $31.1 billion versus a $13 billion operating profit during the same six months in 2019. The six-month loss was equivalent to nearly two years of profitability for an industry that, prior to 2020, was healthy and growing. The total losses for 2020 are estimated to be close to $38 billion, which essentially wipes out the earnings for the past five years.

The three US network airlines reported operating losses of $21.5 billion during the six-month period, representing an operating margin of negative 162.1 percent. The network group generated a $9 billion operating profit during the same period in 2019, and an operating margin of 12.6 percent.

Operating losses posted by the value carrier group amounted to $8.4 billion during the second and third quarters of 2020. That translated to the lowest operating margin of the three groups, at negative 176.3 percent. In the same six-month period in 2019, the group reported the highest operating margin of our three groups, at 14.9 percent.

On a relative basis, ultra low-cost carriers (ULCC) reported the best operating results for the six-month period, cumulatively losing $1.2 billion for an operating margin of negative 85.6 percent. In second and third quarters of 2019, the group posted an operating profit of $700 million.

The relatively low operating losses in the ULCC group reflect the fact that it tends to serve largely the leisure and domestic segments of the market. Both showed significantly smaller declines in demand than did the business and international segments. Business and international affect network and value carriers more substantially.
### Exhibit 16: Systemwide operating profit for US airlines, Q2 and Q3 2019 versus Q2 and Q3 2020

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.0</td>
<td>-21.5</td>
<td>3.3</td>
<td>-8.4</td>
<td>0.7</td>
<td>-1.2</td>
</tr>
</tbody>
</table>

**Operating margin**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>10%</td>
<td>-218%</td>
<td>14%</td>
<td>-198%</td>
<td>6%</td>
<td>-100%</td>
</tr>
<tr>
<td>Transport</td>
<td>23%</td>
<td>-32%</td>
<td>36%</td>
<td>-6%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13%</strong></td>
<td><strong>-162%</strong></td>
<td><strong>15%</strong></td>
<td><strong>-176%</strong></td>
<td><strong>15%</strong></td>
<td><strong>-86%</strong></td>
</tr>
</tbody>
</table>

2020 combined six-month loss for all three types = $31.1 billion

Source: US Department of Transportation P 1.2 Income Statement via Planestats.com

Source: US Department of Transportation P 1.2 Income Statement via Planestats.com

At negative 51 percent, Sun Country’s operating margin was the highest of the ULCCs as well as of the group of 11. The carrier was helped significantly by its year-old partnership with Amazon Prime, taking in $17.7 million in the second and third quarters versus $400,000 in the two quarters the year prior. Spirit Airlines reported the worst operating margin of the ULCC group, at a negative 109.6 percent.
Delta reported the best performance of the network carriers and beat out the value carriers as well. It reported an operating margin of negative 128.1 percent and operating losses of $5.8 billion during the six-month period.

Hawaiian Airlines faced one of the toughest challenges during COVID-19 because of the state's more stringent quarantine restrictions on travel to the islands. While tough on Hawaiian, that effort to contain COVID-19 was successful; as of March 8, 2021, Hawaii had reported the lowest per capita deaths of the 50 states.

As a result of the quarantines, the carrier reported the worst operating margin of our group, at negative 348.4 percent. While Hawaiian's capacity year over year was down 86 percent in the third quarter of 2020, it rebounded a bit in the fourth quarter with a decline of 65 percent, after the state relaxed quarantine restrictions and the leisure market in the US continued to rebound. Alaska's operating margin of negative 147.3 percent was the best result of the value carrier group.

**OPERATING REVENUE**

Over the past few years, US airline revenue tended to track relatively closely with the growth in real gross domestic product. In 2019, airline revenue grew 3.4 percent, while GDP increased 2.2 percent, as an example. The pandemic caused extreme changes in both GDP and airline revenue that no longer always coincided.

During the second quarter of 2020, both GDP and US carrier revenue headed south, with airlines feeling more pain than the overall economy. GDP declined more than 33 percent compared with the second quarter 2019, while airline revenue was down 69.1 percent. In the third quarter, the story was vastly different with GDP making a 31 percent comeback, while airline revenue was still down 58.2 percent. By the end of 2020, US GDP was down 3.5 percent for the year, and airline revenue was down 63 percent compared with 2019.
On a positive note, US air freight revenue increased during 2020, ending the third quarter up one percent. In this case, COVID-19 was partially responsible for the gain as the need for social distancing and the closure of many retail operations expanded the use of e-commerce by shoppers.

**Exhibit 18: How revenue of 11 US airlines performed against gross domestic product, 2004 through Q3 2020**

**US domestic passenger revenue versus GDP**

![Graph showing US domestic passenger revenue versus GDP from 2000 to Q3 2020.](image)

**GDP versus ratio of domestic passenger revenue to GDP**

![Graph showing GDP and ratio of domestic passenger revenue to GDP from 2000 to Q3 2020.](image)

Notes: Airline revenue excludes transports which largely includes regional partner revenue.

Source: Planestats.com; Form 41 Financials; P 1.2 Income Statement; Nominal (Current) GDP from US Bureau of Economic Analysis.
Operating revenue for the airlines in our study fell 80.2 percent to $19.5 billion during the second and third quarters of 2020. Network carriers reported the largest decline in revenue during the six-month period, down 81.5 percent in total operating revenue, because of the drop in both business and international travel. The group’s passenger revenue was down 88.5 percent. Network carrier cargo revenue increased 3.8 percent during the same six months.

Operating revenue for value carriers was down 78.2 percent for the second and third quarters of 2020 with passenger revenue declining 82.9 percent. While the group has turned in strong performances in recent years, it was hurt by New York-based JetBlue, which was confronted by the near shutdown of travel in the state in the second quarter because of COVID-19. Although smaller, Hawaiian Airlines’ revenue also contributed to the group’s decline because of quarantine restrictions. For the six-month period, operating revenue for the ULCCs dropped 69.1 percent.

The dramatic loss of revenue was the result of nothing short of the largest and most severe drop in passenger demand in aviation history. Ironically, 2020 started out as a good year for airlines, with passenger demand in January and February on the rise. For the airlines in our study, January revenue passenger miles (RPMs) were up 5.8 percent, and February RPMs were 3.5 percent higher. As the virus took hold in the US in March, passenger demand disappeared. March RPMs were 50.4 percent below the same month in 2019, and April was down an astounding 96 percent.

Exhibit 19: Systemwide operating revenue for US airlines, Q2 and Q3 2019 versus Q2 and Q3 2020

<table>
<thead>
<tr>
<th>In US$ billions</th>
<th>Network</th>
<th></th>
<th>Value</th>
<th></th>
<th>ULCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>71.8</td>
<td>13.3</td>
<td>21.9</td>
<td>4.8</td>
<td>4.5</td>
</tr>
<tr>
<td>2020</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percent change year-over-year

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Passenger</th>
<th>Cargo</th>
<th>Other</th>
<th>Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-81.5%</td>
<td>-88.5%</td>
<td>3.8%</td>
<td>-65.1%</td>
<td>-70.7%</td>
</tr>
<tr>
<td></td>
<td>-78.2%</td>
<td>-82.9%</td>
<td>-19.1%</td>
<td>-52.3%</td>
<td>-54.5%</td>
</tr>
<tr>
<td></td>
<td>-69.1%</td>
<td>-69.8%</td>
<td>--</td>
<td>-66.5%</td>
<td>-76.5%</td>
</tr>
</tbody>
</table>

Note: Mainline operations only; excludes transport-related revenue
Source: Planestats.com; Form 41 Financials; P 1.2 Income Statement
In the spring of 2020, US airlines struggled to cut capacity enough to match the rapidly diminishing demand. Only 13.1 percent of seats were filled during April 2020, even after airlines reduced total capacity 73.6 percent for the month. Airlines cut overall capacity 77 percent during May, resulting in a 38.9 percent load factor. The load factor for the second and third quarters was 45.1 percent. But in the second half of the year, it became a game of trying to keep up with the endless fluctuations in demand.

During the second and third quarters of 2020, network carriers reduced systemwide capacity 75 percent. Demand fell 87.1 percent. The value carrier group reduced capacity 57.9 percent and had the lowest load factor at 40 percent. ULCCs reduced capacity 53.3 percent while maintaining a 58.9 percent load factor.

The decline in passenger revenue was 2.5 percentage points more than the decline in demand. The gap was largely the result of a corresponding decline in passenger yield of 15.2 percent, with the drop in corporate travel. Value carriers had the largest decline in passenger yield, down 13.1 percent, followed by network carriers and ULCCs.

**Exhibit 20: Monthly domestic load factors for US carriers**

<table>
<thead>
<tr>
<th>January 2019 through September 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
</tr>
<tr>
<td>80%</td>
</tr>
<tr>
<td>60%</td>
</tr>
<tr>
<td>40%</td>
</tr>
<tr>
<td>20%</td>
</tr>
<tr>
<td>0%</td>
</tr>
<tr>
<td>2019</td>
</tr>
<tr>
<td>2020</td>
</tr>
</tbody>
</table>

- **Network**
- **Value**
- **ULCC**

**Cumulative monthly load factors for 2020**

- **Jan**
- **Feb**
- **Mar**
- **Apr**
- **May**
- **Jun**
- **Jul**
- **Aug**
- **Sep**

Note: Mainline operations only
Source: Planestats.com; Form 41; T100 Traffic
Mainline revenue per available seat mile (RASM) — also known as unit revenue — for the combined carriers in our study fell 42.6 percent over the six-month period in 2019. Value carriers had the largest decline in unit revenue, falling 51.6 percent. The loss was driven by larger declines in passenger yield and a significantly lower load factor for the period.

Network carrier RASM declined 36 percent for the combined second and third quarters of 2020. International RASM increased during the second quarter as a result of the group operating at only 6.3 percent of capacity relative to 2019. ULCC carriers, with a 32.2 percent decline, had the smallest drop in unit revenue.

Revenue was down 90.8 percent at Hawaiian Airlines, the largest percent decline among all carriers in our study. JetBlue had the second largest revenue percentage drop because of its hard-hit New York-centric business.

The four ULCCs also reported the smallest drops in total revenue, with Allegiant’s 65.1 percent dip being the smallest of the group and in our study.

In absolute terms, Delta lost $20.6 billion in operating revenue. To put the loss of revenue in perspective, Delta lost more revenue during the six-month period than the carrier took in during 2010. American lost $19.1 billion in revenue, and United lost $18.8 billion.

Exhibit 21: Operating revenue for 11 US airlines, Q2 and Q3 2019 versus Q2 and Q3 2020

In US$ millions

<table>
<thead>
<tr>
<th>Change YOY</th>
<th>Delta</th>
<th>American</th>
<th>United</th>
<th>Southwest</th>
<th>Alaska</th>
<th>JetBlue</th>
<th>Spirit</th>
<th>Frontier</th>
<th>Hawaiian</th>
<th>Allegiant</th>
<th>Sun Country</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-82.0%</td>
<td>-79.9%</td>
<td>-82.6%</td>
<td>-75.7%</td>
<td>-76.0%</td>
<td>-83.1%</td>
<td>-73.0%</td>
<td>-66.4%</td>
<td>-90.8%</td>
<td>-65.1%</td>
<td>-66.7%</td>
</tr>
</tbody>
</table>

Group Average:
- Domestic: -77.4%
- International: -88.1%

Source: US Department of Transportation Form 41 via PlaneStats.com; Includes transport-related revenue; YOY stands for year-over-year
OPERATING COSTS

The flexibility to reduce operating expenses will be a key determinant of which global airlines survive and thrive and which do not. For the second and third quarters of 2020, the 11 airlines in our study were able to reduce total operating expenses by $34.6 billion, or 40.6 percent, over the same period in 2019. The decline was largely driven by reductions in variable costs: less flying resulting in lower fuel consumption and less maintenance are prime examples.

That said, cost per available seat mile (CASM) — also referred to as unit cost — increased significantly across all carrier groups. This indicates that the industry was not able to remove costs to align with lower capacity.

Labor and fuel — together amounting to about half of total airline costs in a normal year — represent the industry’s biggest expenses, often competing over which will be the biggest. In 2020, labor was the largest cost category for the industry, given significantly lower jet fuel prices and consumption. Labor costs declined or held flat across all carrier groups on an absolute basis but increased on a unit basis.

While many carriers began to furlough staff during the two quarters, some remained more cautious about reducing employees than they were about cutting capacity. The fear: Pent-up desire might lead to a more rapid and potentially larger rebound, making it difficult to staff up fast enough to capitalize on the return of demand.

Additionally, airlines were being given federal subsidies and loans to keep workers on the payroll through the CARES Act. The uncertainty, coupled with the federal monies, led many carriers to never fully adjust staffing levels to match demand or capacity — something that airlines will have to take into account as they prepare for recovery.

Network airlines were able to reduce total expenses on labor by 32.8 percent, but on a CASM basis, the unit cost rose 169.1 percent based on reduced flying. On average, the group operated during the six-month period with 13.9 percent fewer employees.

Total labor costs increased 2.8 percent for value carriers, resulting in a 143.6 percent increase in labor unit cost. On average, value carriers employed 1.3 percent fewer employees between April and September of 2020.

ULCC labor costs were reduced 5.7 percent, even though the group had slightly more employees during the period than at the beginning of the year.
The Economics of a Crisis

Exhibit 22: Systemwide operating expenses for US airlines, Q2 and Q3 2019 versus Q2 and Q3 2020

In US$ billions

<table>
<thead>
<tr>
<th></th>
<th>Network</th>
<th>Value</th>
<th>ULCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>62.8</td>
<td>18.6</td>
<td>3.8</td>
</tr>
<tr>
<td>2020</td>
<td>34.8</td>
<td>13.2</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Percentage drop in 2020 operating expenses

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Network</th>
<th>Value</th>
<th>ULCC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-44.5%</td>
<td>-43.4%</td>
<td>-29.3%</td>
<td>-32.5%</td>
</tr>
<tr>
<td>Mainline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td>-50.0%</td>
<td>-25.4%</td>
<td></td>
<td>-100.0%</td>
</tr>
</tbody>
</table>

Source: US Department of Transportation Form 41 via PlaneStats.com

The cost for the other major expense, fuel, fell 82.9 percent for the entire study group. The decline was driven by lower fuel consumption as a result of flying less and by lower prices on jet fuel.

Prices for jet fuel dropped as economic shutdowns in many countries caused a collapse in demand for oil and oil products in general. Average jet fuel cost per gallon fell 37.4 percent for the 11 carriers in our study.

For the network group, fuel cost per ASM fell by 34.4 percent. The lower cost per gallon saved the group more than $1 billion during the six-month period.

Value carriers’ fuel cost savings represented more than 60 percent of the group's total cost savings last year. Fuel cost per ASM declined 31.4 percent over 2019. Lower costs per gallon saved value airlines $657 million during the second and third quarters of 2020.

Reduction in ULCC fuel cost accounted for 68 percent of the group's overall cost reductions during the second and third quarters of 2020. Reductions in cost per gallon of fuel provided the ULCC group a saving on the period’s expenses of $192 million.
Another cost that declines with a reduction in flying is maintenance. Overall, aircraft maintenance costs were down 41.1 percent, and all three groups saw declines in the category. The network group saw a decline of 42 percent, value carriers were down 40.9 percent, and ULCCs 26.3 percent. Still, overall maintenance CASM would still have increased.

But there were other costs less flexible than fuel, maintenance, or even labor. Absolute aircraft ownership and rent costs largely held flat, relative to other categories across all groups. While most carriers parked portions of their fleets and underutilized their facilities, few permanently reduced their fleets or operational real estate footprints during the period. This preserved flexibility as the nature of the crisis unfolded. Over the short term, these decisions put pressure on financial performance and contributed to a significant increase in unit cost.
The Economics of a Crisis

Exhibit 24: Systemwide costs for US value carriers, Q2 and Q3 2019 versus Q2 and Q3 2020

Cost per available seat mile (CASM)
In US cents

<table>
<thead>
<tr>
<th>Change in CASM</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>+144%</td>
</tr>
<tr>
<td>Fuel</td>
<td>-48%</td>
</tr>
<tr>
<td>Aircraft</td>
<td>+40%</td>
</tr>
<tr>
<td>maintenance</td>
<td></td>
</tr>
<tr>
<td>Aircraft</td>
<td>+129%</td>
</tr>
<tr>
<td>ownership</td>
<td></td>
</tr>
<tr>
<td>Non-aircraft</td>
<td>+116%</td>
</tr>
<tr>
<td>rent</td>
<td>+14%</td>
</tr>
<tr>
<td>Landing fees</td>
<td>-56%</td>
</tr>
<tr>
<td>Food</td>
<td></td>
</tr>
<tr>
<td>Non-aircraft</td>
<td>+177%</td>
</tr>
<tr>
<td>depreciation</td>
<td></td>
</tr>
<tr>
<td>Commission</td>
<td>-76%</td>
</tr>
<tr>
<td>Ads and</td>
<td>+18%</td>
</tr>
<tr>
<td>promotion</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>+33%</td>
</tr>
</tbody>
</table>

Note: Mainline operations only; excludes transport-related revenue; rent and commissions do not include aircraft-related expenses, which are included in aircraft ownership.
Source: US Department of Transportation Form 41 via PlaneStats.com

The gap between absolute and unit cost changes across carrier groups offers some insight into how each was impacted. The network carrier group's cost decline of 43.4 percent outpaced that of the value and ULCC groups, which fell by 29.5 percent and 32.4 percent, respectively. However, network group unit cost increased by 126.7 percent, while value carriers saw an increase of 67.4 percent and ULCCs of 44.8 percent. Relative to flown capacity, the network group made the decision to carry more costs so they could come back quickly and paid for that with unit cost increases.

This year we have included the transport category in our analysis. Particularly for the network carrier group, this largely represents revenue and cost from regional and commuter operations. Network group transport revenue fell 70.7 percent, and costs fell 50 percent. As a result, the group incurred additional operating losses of $1.2 billion.

Note: Mainline operations only; excludes transport-related revenue; rent and commissions do not include aircraft-related expenses, which are included in aircraft ownership.
Source: US Department of Transportation Form 41 via PlaneStats.com
A BREAK IN THE CLOUDS

Against the backdrop of a disastrous 2020, we are now seeing signs of optimism for the recovery of air travel, particularly in the United States. Multiple new vaccines with high efficacy are being administered in rapidly rising numbers after the Biden administration increased production to a level that would cover the full immunization of every adult in the US by the end of May. Globally, the same progress is not being seen on vaccinations, except in a handful of countries. This may mean US air travel will be among the first to make a more substantial comeback. The exceptions are places like China, South Korea, and Vietnam where domestic air traffic recovered to 2019 levels in 2020 because of pre-vaccine aggressive containment of the virus.

The progress of the US vaccination program — in addition to stimulus from the $1.9 trillion American Rescue Plan Act — has prompted economists to increase their US growth projections for 2021 and lower the outlook for unemployment. Oliver Wyman’s Pandemic Navigator team is now calling for herd immunity to be reached in most places in the US by mid-June to early July — three to six weeks ahead of earlier forecasts. Daily dose distribution is headed toward more than three million, and on March 13, the Centers for Disease Control and Prevention reported an astounding 4.6 million doses administered in one day.

We expect the speedier vaccination to unlock the kind of pent-up demand for air travel that we saw during 2020’s major holiday travel periods. Over Fourth of July, Labor Day, Thanksgiving, and Christmas travel periods, we saw passenger traffic jump five to 10 percentage points over the activity in the weeks preceding and following. A similar jump was seen during August in Europe, the traditional vacation month for the continent, which may mean pent-up demand could push up European numbers as well once they catch up on vaccinations.

In North America, we still expect to see a recovery of demand to 2019 levels on domestic leisure travel by mid-2022, but the return may be less gradual than previously anticipated. A resurgence in the US aviation market will be the primary reason for the improved outlook. We now expect US air travel demand to recover to 2019 levels by early 2022, months ahead of our fall predictions, based on widespread and expedited availability of vaccines.

In mid-February, travel demand hovered in the low 40 percent of 2019 levels. By mid-March, after news of increased vaccine availability and the arrival of school spring breaks, that number spiked to more than 50 percent, which is the highest level reached on a sustained basis since the start of the pandemic.

The leisure travel we’ve been seeing to date has been generated by visits to friends and family and getaways to sunny spots or markets like Colorado with outdoor activities that allow for social distancing. While social distancing may become less of a priority once we reach herd immunity, travelers are still expected to prefer destinations with outdoor activities over urban vacations through the summer months. So far, some big beneficiaries of this trend have been certain Florida beaches, Puerto Rico, Denver, and Cancún, Mexico.
LAG IN INTERNATIONAL AND CORPORATE

That isn't true for the rest of international travel as those who want to go overseas continue to bump up against numerous travel restrictions in the form of mandated testing or quarantines or outright prohibitions. Consequently, the international segment will make a slower comeback. As of March, international capacity was still at only 29 percent of 2019 levels and demand was several percentage points below that, not much better than at the worst of the pandemic.

The lack of progress in vaccination dissemination outside of the US will also hold back international travel. As of mid-March, around 355 million doses had been administered globally. Only six nations — the United States, the United Kingdom, Chile, the United Arab Emirates, Israel, and Serbia — have given out more than 20 shots per 100 people. Most countries have rates in the single digits.

Because of this disparity, each country will progress toward herd immunity at its own rate, raising the likelihood of cross-border restrictions staying in place for many months to come. But we may see countries that reach herd immunity begin to negotiate relaxation of those restrictions on a bilateral basis. We do not expect to see real holistic recovery in international travel until 2023 and 2024, depending on the destination.

Like international, business travel will also be slow coming back for a variety of reasons. First, there is the obvious one. Many companies have not even brought employees back to the workplace yet, and to avoid liability, many will wait for all-clear signals from government before asking employees to travel again. Additionally, some events, such as in-person conferences and trade fairs, that draw the business community have not started up again.

In 2020, companies had been using the savings from unspent business travel budgets to help offset lower revenue. 2021 is expected to see a boom in US economic activity — current forecasts for gross domestic product growth in 2021 range from 5.5 percent to eight percent. Even so, we anticipate companies to ramp up slowly, with intra-company travel the slowest to recover, in part because of the success of videoconferencing and other remote work tools.

In three Oliver Wyman surveys conducted over the last year, respondents said they expected to do as much or more videoconferencing post-pandemic. In one survey, most respondents considered video conferencing as effective as in-person meetings. In a survey conducted in March by the Oliver Wyman Forum, 58 percent of 1,000 US respondents said they expected to continue to use videoconferencing as much post-pandemic as they did during COVID-19, which would not be a positive sign for business travel.

Fewer impediments exist for the return of domestic leisure travel, and recovery around the world is expected to be initially concentrated in these predominantly short-haul trips. Based on a sample of geographically diverse countries, domestic traffic worldwide had recovered on average, to 35 percent, of 2019 levels by late 2020. By the end of December, worldwide domestic capacity was at negative 24 percent; by March 2021, that number had risen to negative 14 percent.
While the recovery trajectories for both domestic and international travel in each country will share common characteristics, they will inevitably be unfolding at different paces. Airlines in the US and China have an advantage over airlines in many other countries because so much of those nations’ air travel is domestic — almost half of US capacity and a little more than half of China’s are domestic versus barely 10 percent of Europe’s. These are based on available seat miles. The large percentage of domestic capacity for the US and China is a function of the nations’ size, diverse geography, and consumer buying power; in the case of the US, it also reflects the lack of high-speed rail alternatives. Europe’s advanced rail system keeps the numbers for domestic travel by air lower on both the continent and in the UK.

**UNEVEN VACCINATION PROGRESS**

In Europe, the United Kingdom was initially the most aggressive in doling out vaccine. But the inoculation rate for almost all European nations is still in the low single digits, compared with the US, which now has about 15 percent of its population fully vaccinated.

From an aviation perspective, Europe has also seen evidence of pent-up demand. Traffic in some European countries recovered to as much as 60 percent of 2019 levels during the traditional peak vacation month of August in 2020. That uptick preceded, and may have been partially the cause of, the second wave of COVID-19 that subsequently swept the continent.

We expect to see Latin America return to 2019 demand levels for domestic travel in 2022, although working against it is the slower economic growth anticipated for Brazil and Mexico.

**Exhibit 25: Regions are on different trajectories for recovery**

<table>
<thead>
<tr>
<th>Region</th>
<th>Domestic Accelerated</th>
<th>Domestic Prolonged</th>
<th>International Accelerated</th>
<th>International Prolonged</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>Mid 2022</td>
<td>🌈 Less likely</td>
<td>Late 2024</td>
<td>🌈 More likely</td>
</tr>
<tr>
<td>South America</td>
<td>Mid 2022</td>
<td>🌈 More likely</td>
<td>Late 2024</td>
<td>🌈 Less likely</td>
</tr>
<tr>
<td>Western Europe</td>
<td>Early 2022</td>
<td>🌈 More likely</td>
<td>Mid 2024</td>
<td>🌈 More likely</td>
</tr>
<tr>
<td>Asia</td>
<td>Early 2022</td>
<td>🌈 More likely</td>
<td>Early 2024</td>
<td>🌈 More likely</td>
</tr>
<tr>
<td>South Pacific</td>
<td>Late 2021</td>
<td>🌈 Less likely</td>
<td>Mid 2024</td>
<td>🌈 More likely</td>
</tr>
</tbody>
</table>

Source: Oliver Wyman analysis
INDUSTRY IMPLICATIONS

While this outlook may reflect more optimism than we've been able to muster over the past year, we believe it will still be a bumpy ride for airlines, with many new challenges along the way. For one, the changing customer and market mix suggests that many airlines will need to be constantly re-evaluating demand forecasts and capacity planning. For example, peak demand periods are typically driven by leisure travel and often run counter to those for business travel. With business travel lagging, demand in the off-peak for leisure trips will no longer be offset and will likely be lower. For full-service and other carriers that target business travel, it will mean anticipating constantly shifting demand patterns across the year.

Coming out of the crisis, full-service carriers will have to compete head-to-head with value and low-cost carriers, as they implement strategies that appeal to more price-sensitive leisure travelers. Instead of offering only a premium product at a premium price, legacy carriers will start selling more services a la carte, aimed at a broader customer base with different needs and less willingness to pay.

Over the short and medium term, this means that the industry will likely sit on a surplus of assets. As demand has been slowly recovering, capacity has too. In fact, capacity restoration has already outstripped demand recovery, as airlines have pulled aircraft out of storage and begun to accept deliveries on new ones, albeit very few. Carriers have been redeploying assets as quickly as possible and will continue to for months, making decisions often on a cashflow basis.

To ride out the pandemic, most airlines were forced to raise cash to ensure they had financial staying power; a few borrowed against loyalty programs. That helped most of them make it through the months of chaos. But airlines will be facing pressure on their balance sheets and margins for at least the next few years and possibly more.

As the recovery matures and demand stabilizes at higher levels, carriers will have to reassess. While cashflow should have improved by then, most airlines will still have significant balance sheet repair to do as well as facing the potential challenges of scaling up operations.

COVID-19 ISN'T OVER YET

Of course, threats to recovery remain from the coronavirus. COVID-19 has continued to mutate over the last several months, producing several new strains that so far have not proven resistant to the vaccine. While health officials have said the vaccine should prevent deaths and hospitalizations from the variants, premature relaxation of health protocols and continued resistance to COVID-19 rules on masking and social distancing are raising the potential for new outbreaks. With more new cases, the risk of variants rises.

That said, all the elements are in place for a pickup in summer travel — a relief valve that presents itself just in time for a beleaguered industry and stir-crazy people around the world.
Appendix

Exhibit 26: Capacity index by available seat miles, on a rolling 12-month basis 2019-2021

Note: As of February 15, 2021
Source: OAG schedule data via PlaneStats.com; Domestic = capacity within individual countries
Exhibit 27: Operating profit for 11 US airlines, Q2 and Q3 2020

Operating revenue and expenses
In US$ millions

<table>
<thead>
<tr>
<th>Operating Loss</th>
<th>Delta</th>
<th>American</th>
<th>United</th>
<th>Southwest</th>
<th>Alaska</th>
<th>JetBlue</th>
<th>Spirit</th>
<th>Frontier</th>
<th>Hawaiian</th>
<th>Allegiant</th>
<th>Sun Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5,809.9</td>
<td>$9,404</td>
<td>$6,334</td>
<td>$4,876</td>
<td>$1,652</td>
<td>$1,399</td>
<td>$592</td>
<td>$252</td>
<td>$472</td>
<td>$296</td>
<td>$58</td>
<td></td>
</tr>
</tbody>
</table>

Source: Planestats.com, Form 41 Financials, P 1.2 Income Statement; Includes transport-related revenue

Exhibit 28: Change in capacity for 11 US carriers

Drop in available seat miles between 2019 and 2020

<table>
<thead>
<tr>
<th>Network</th>
<th>Value</th>
<th>ULCC</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>-66%</td>
<td>-55%</td>
<td>-51%</td>
<td>-61%</td>
</tr>
<tr>
<td>-87%</td>
<td>-82%</td>
<td>-79%</td>
<td>-86%</td>
</tr>
<tr>
<td>-75%</td>
<td>-58%</td>
<td>-53%</td>
<td>-69%</td>
</tr>
</tbody>
</table>

Note: Mainline operations only
Source: Planestats.com; Form 41; T2 Traffic
Exhibit 29: Change in load factors by airline class, 2Q and Q3 2019 versus 2Q and Q3 2020

Note: Mainline operations only
Source: Planestats.com; Form 41; T2 Traffic

Exhibit 30: Comparing US carrier yield by airline class, 2018 through Q3 2020

Note: Mainline operations only; excludes transport-related revenue
Source: Planestats.com; Form 41 Financials; P1.2 Income Statement
Exhibit 31: Comparing US carrier RASM by airline class, 2018 through Q3 202

Revenue per available seat mile (RASM)
In US cents

Note: RASM in this case only counts revenue from mainline operations and excludes transport-related revenue
Source: Planestats.com; Form 41 Financials; P1.2 Income Statement

Exhibit 32: Comparing CASM by airline class, 2018 through Q3 2020

Cost per available seat mile (CASM)
In US cents

Note: CASM in this case only counts costs from mainline operations and excludes transport-related costs
Source: Planestats.com; Form 41 Financials; P1.2 Income Statement

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Exhibit 33: How airlines deal with cost variability

The exhibit shows a scatter plot illustrating the relationship between variable and fixed costs across different cost categories for airlines. The x-axis represents the unit cost percent change, while the y-axis represents the total cost percent change. Key cost categories include:

- Non-Aircraft Depreciation
- Non-Aircraft Rent
- Aircraft Ownership
- Labor
- Other
- Aircraft Maintenance
- Landing Fees
- Ads/Promo
- Fuel
- Food
- Commission

The plot categorizes costs as either variable or fixed, indicating how each cost component reacts to changes in demand or operational efficiency.
Exhibit 34-A: Global passenger volume by country

Wide disparity in level of recovery remains at the country level, though many parts of North America, Europe, and Asia are seeing domestic recovery at ~15–30%

Source: Airlines Reporting Corporation
Exhibit 34-B: Global passenger volume by country

Wide disparity in level of recovery remains at the country level, though many parts of North America, Europe, and Asia are seeing domestic recovery at ~15–30%.

Source: Airlines Reporting Corporation

Source: Oliver Wyman analysis
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The team's capabilities also include: CAVOK, technical consulting on safety and compliance, maintenance programs, and certification (www.cavok.oliverwyman.com); analytical data tools at PlaneStats.com; and strategies and modeling for market share, network, and fleet planning analyses via our Network Simulation Center.

This deep industry expertise and our specialized capabilities make us a leader in serving the needs of the sector.

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