

Coronavirus: impact on the aviation industry worldwide

CORONAVIRUS: IMPACT ON THE AVIATION INDUSTRY WORLDWIDE

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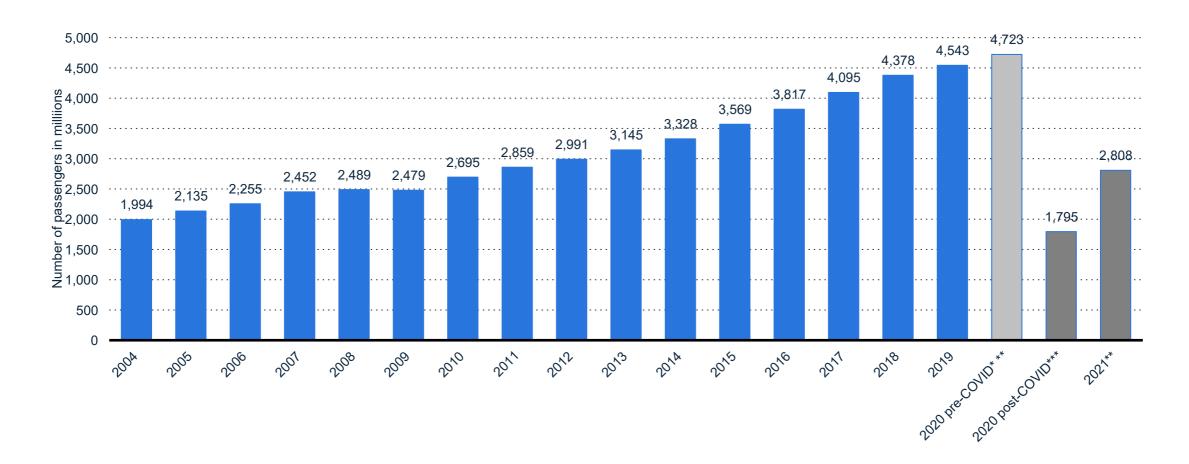
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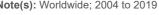
Overview



Number of scheduled passengers boarded by the global airline industry from 2004 to 2021 (in millions)

Global air traffic - scheduled passengers 2004-2021

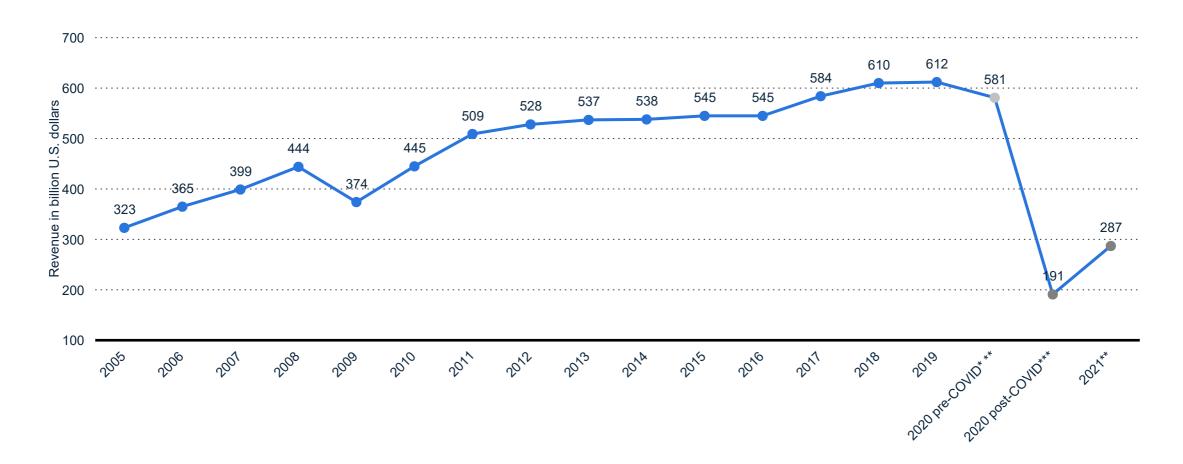






Worldwide revenue with passengers in air traffic from 2005 to 2021 (in billion U.S. dollars)

Air traffic - worldwide revenue with passengers 2005-2021



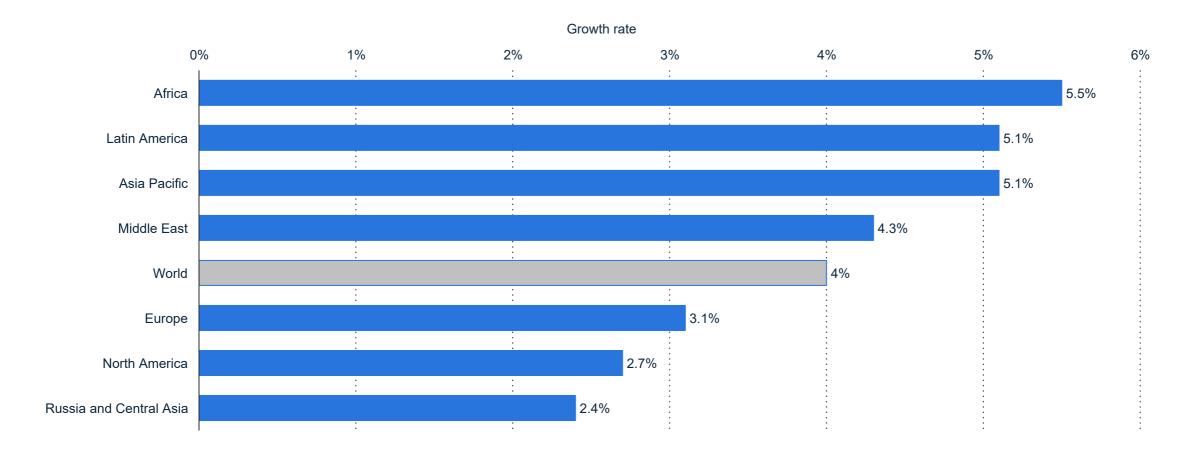
Further information regarding this statistic can be found on page 38

Source(s): IATA; ICAO; ID 263042



Estimated annual growth rates for passenger air traffic from 2020 to 2039, by region*

Air traffic - passenger growth rates forecast 2020-2039



Note(s): Worldwide; 2020

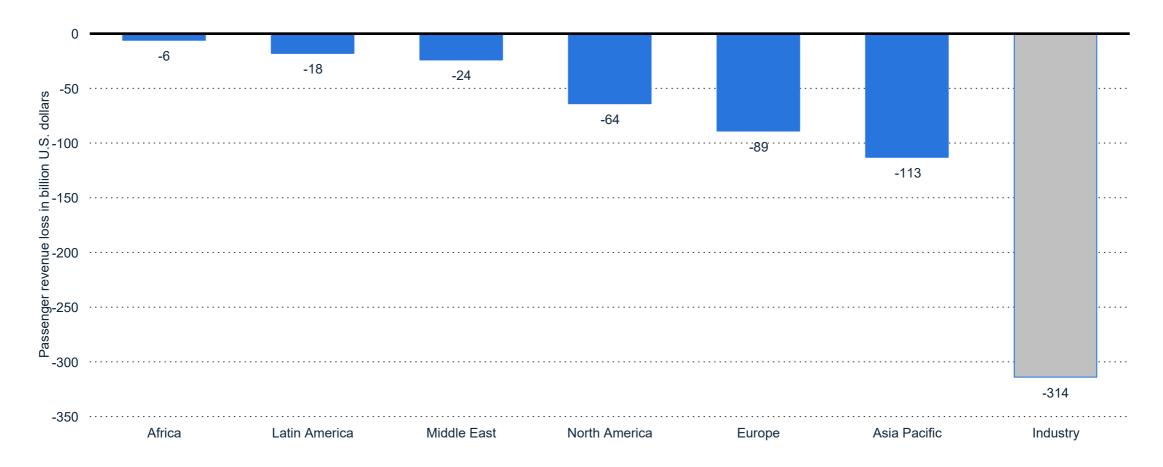
Further information regarding this statistic can be found on page 39.

Source(s): Boeing; ID 269919



Airline passenger revenue loss due to coronavirus outbreak worldwide in 2020, by region of airline registration (in billion U.S. dollars)*

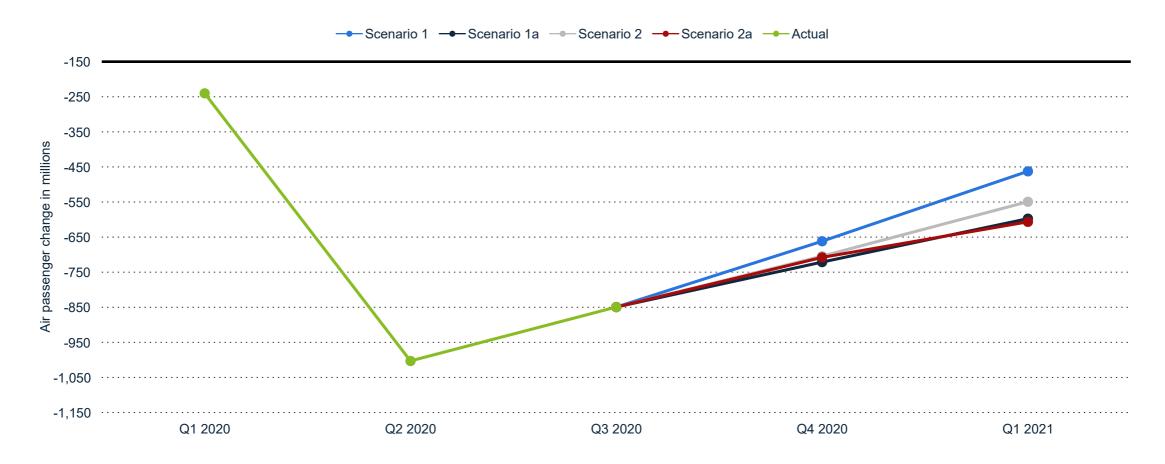
COVID-19's impact estimate on passenger revenue of airlines by region 2020



Source(s): IATA; <u>ID 1106679</u>

Air passenger traffic change due coronavirus (COVID-19) from Q1 2020 to Q1 2021, by scenario (in millions)*

Passenger change in the aviation industry by scenarios 2020-2021



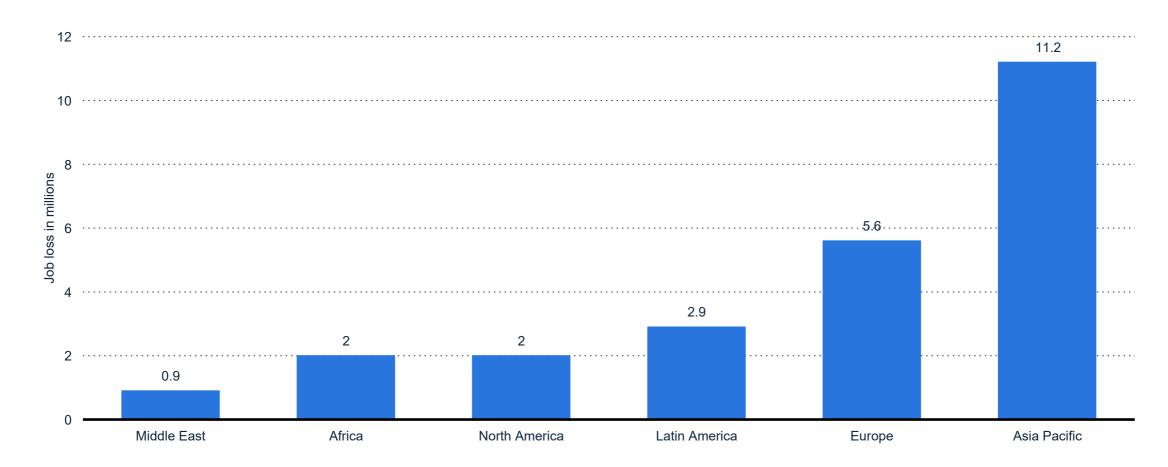
Note(s): Worldwide; Q1 to Q3 2020

Further information regarding this statistic can be found on page 41.

Source(s): ICAO; <u>ID 1106470</u>

Unemployment impact of coronavirus on industries supported by air transport worldwide in 2020, by region (in millions)*

Job loss in industries associated with air travel due to COVID-19 by region 2020



Note(s): Worldwide; 2020

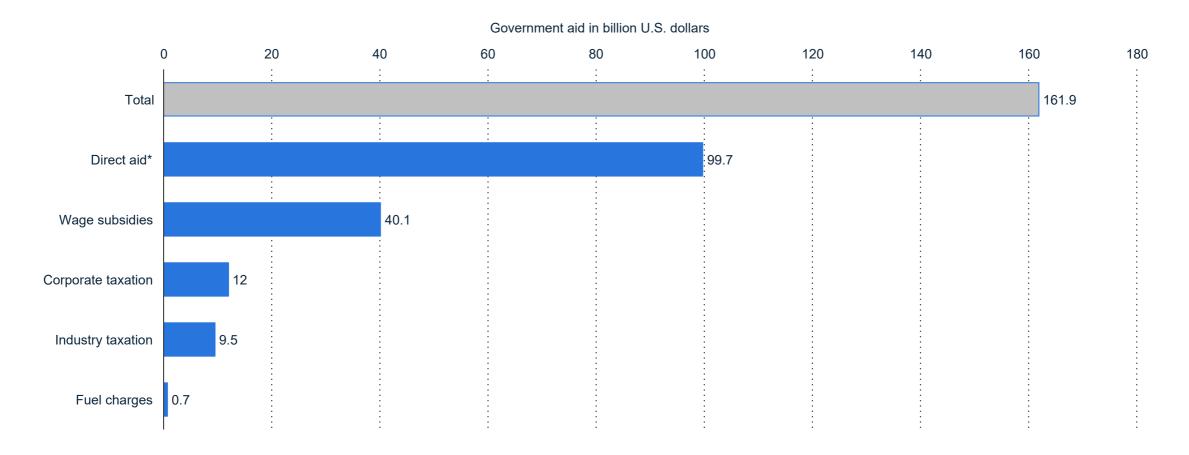
Further information regarding this statistic can be found on page 42.

Source(s): IATA; <u>ID 1110572</u>



Government aid to airlines due to COVID-19 as of September 2020, by type (in billion U.S. dollars)

Types of government aid to airlines due to COVID-19 as of September 2020



Note(s): Worldwide; as of September 2020

Further information regarding this statistic can be found on page 43.

Source(s): IATA; <u>ID 1170560</u>

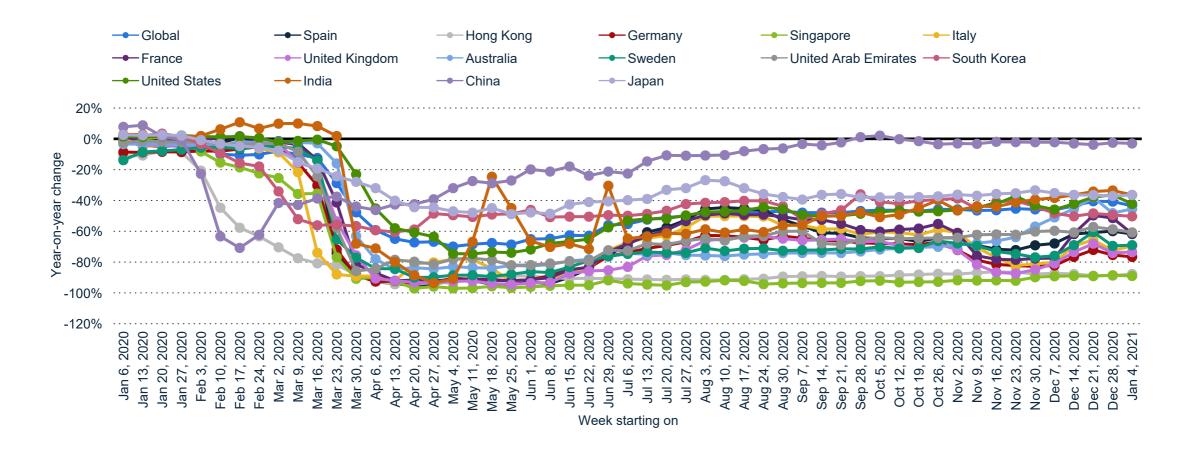
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Impact on passenger aviation



Year-on-year change of weekly flight frequency of global airlines from January 6 to January 4, 2021, by country

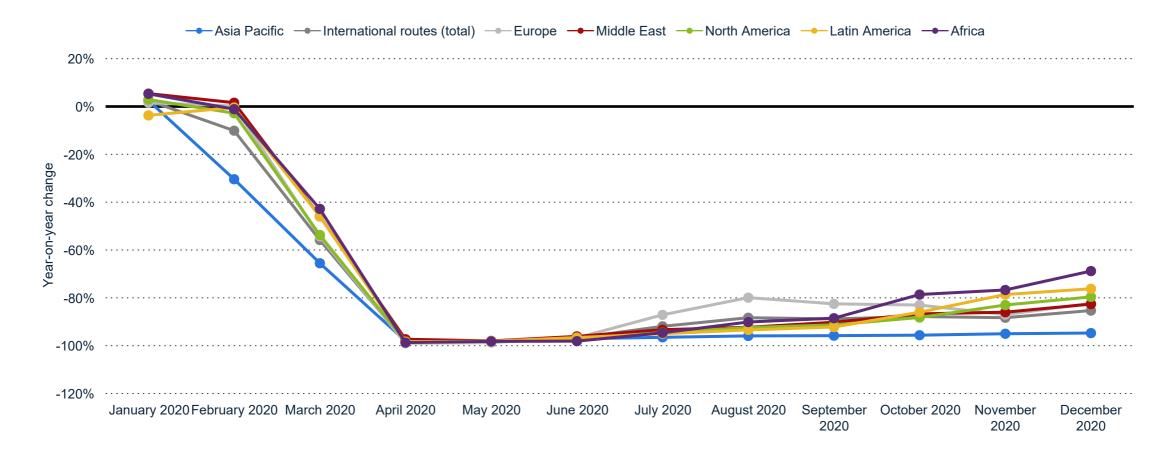
Weekly flights change of global airlines due to COVID-19 as of January 2021





Year-on-year revenue-passenger kilometer (RPK) change on international routes from January to December 2020, by region

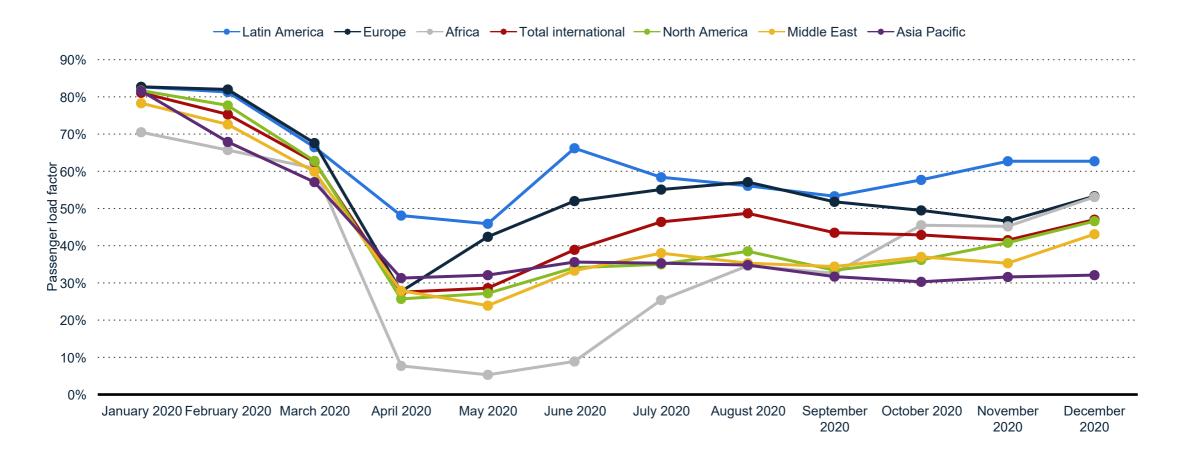
Monthly international revenue-passenger kilometers (RPK) change by region 2020





Passenger load factor (PLF) on international flights from January to December 2020, by region

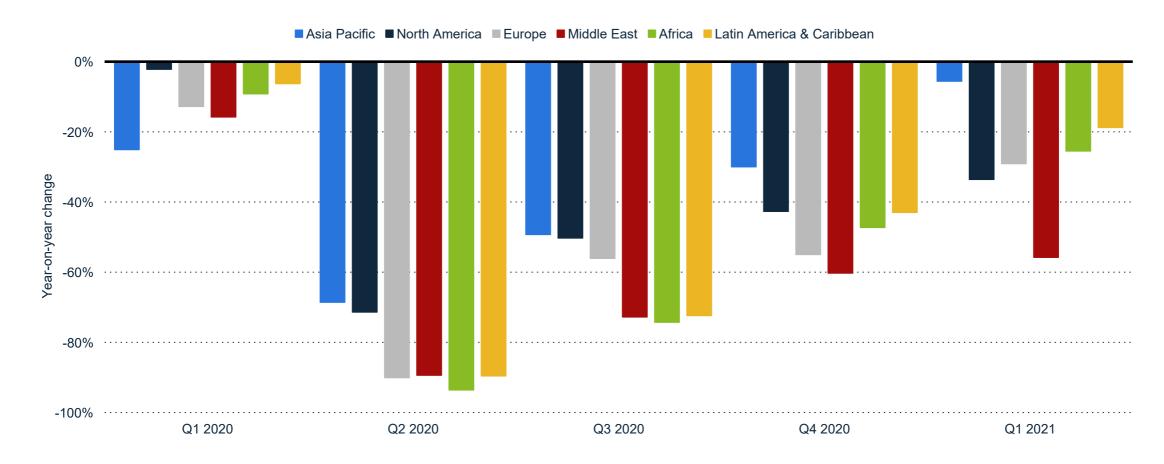
Monthly passenger load factor (PLF) on international flights by region 2020





Year-on-year change on seat capacity due to coronavirus in 2020 and 2021, by quarter and region of airline registration*

Coronavirus: year-on-year change on seat capacity by quarter & region 2020-2021



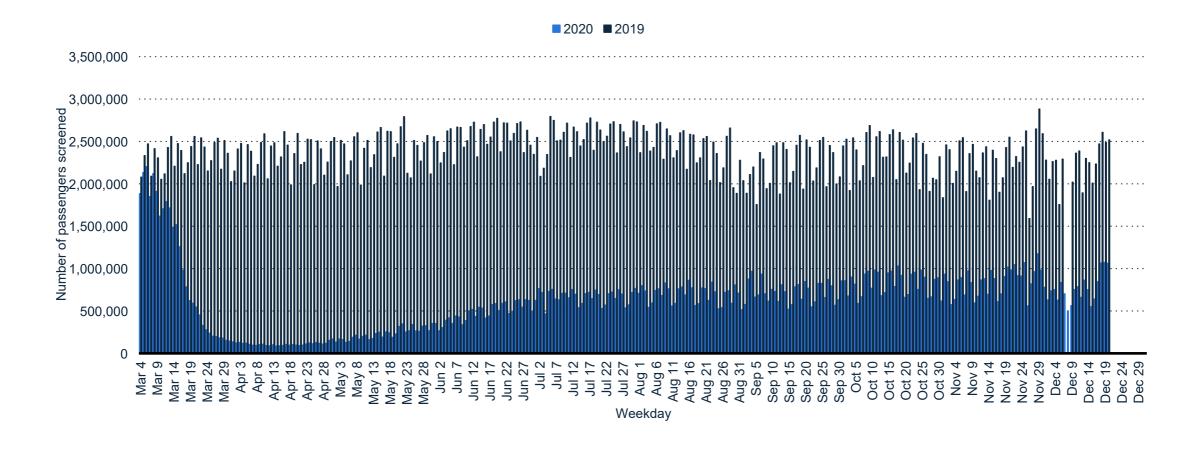
Note(s): Worldwide; Q1 to Q3 2020

Further information regarding this statistic can be found on page 47.

Source(s): ICAO; <u>ID 1106545</u>

Daily number of passengers screened at TSA checkpoints in the United States from March 2019 to December 2020

Coronavirus: TSA checkpoint travel numbers at U.S. airports 2019-2020





Source(s): TSA; ID 1107016

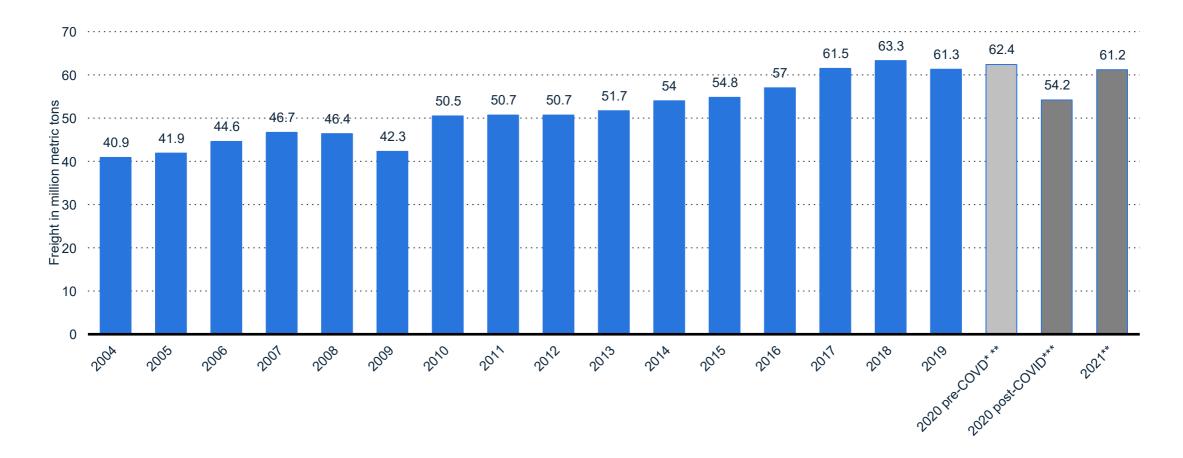
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Impact on air cargo



Worldwide air freight traffic from 2004 to 2021 (in million metric tons)

Air cargo traffic - worldwide volume 2004-2021



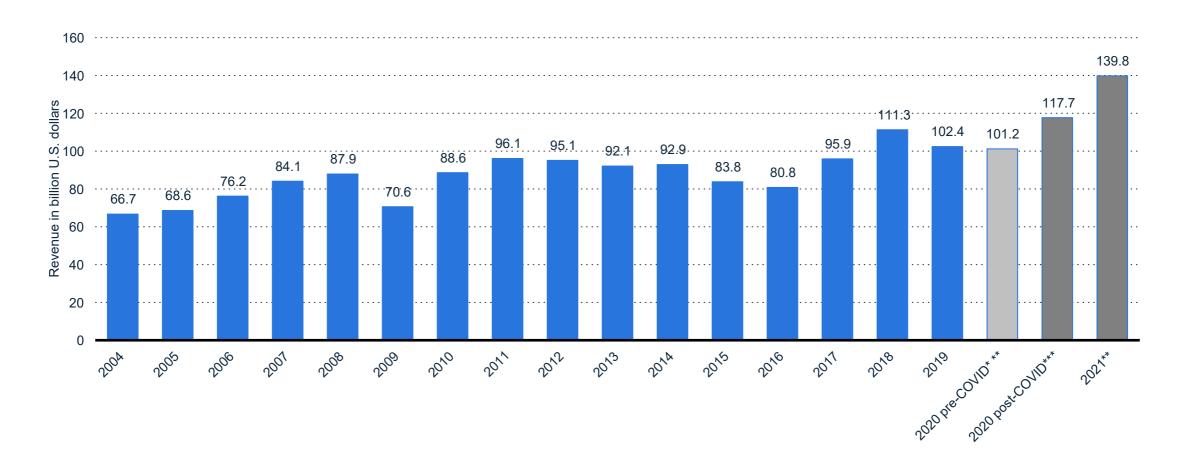


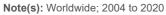
Source(s): IATA; ID 564668



Worldwide revenue of cargo airlines from 2004 to 2021 (in billion U.S. dollars)

Air cargo traffic - worldwide revenue 2004-2021





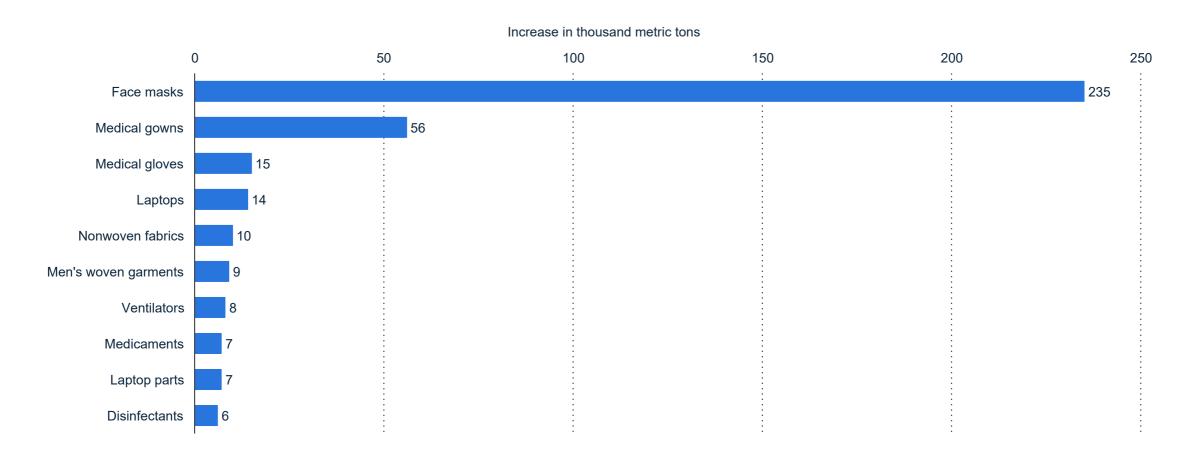
Further information regarding this statistic can be found on page 50.

Source(s): IATA; <u>ID 564658</u>



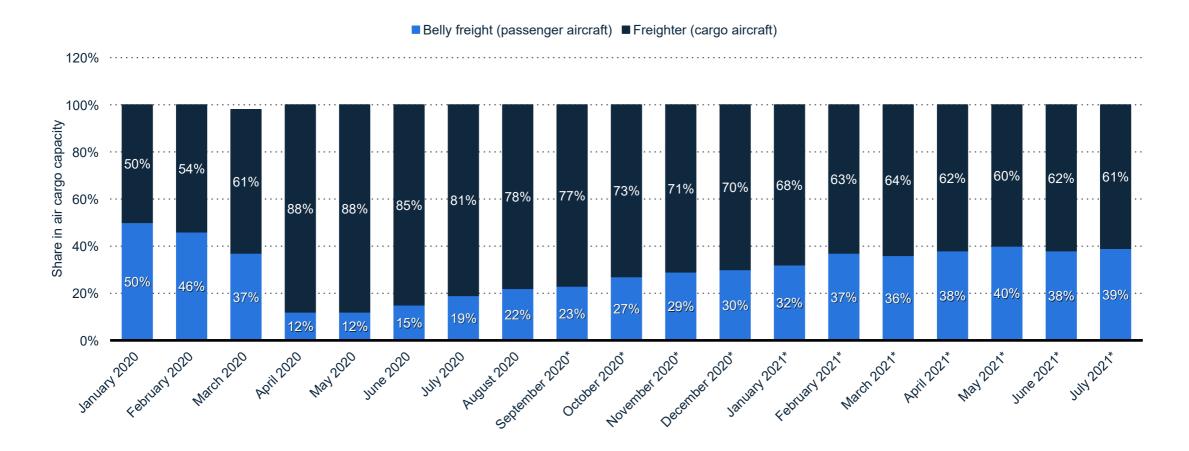
Top commodity increase in global air cargo trade between April and May 2020 (in 1,000 metric tons)

Increase in top commodities in global air cargo trade April-May 2020



Global air cargo capacity share between January 2020 and July 2021, by aircraft type

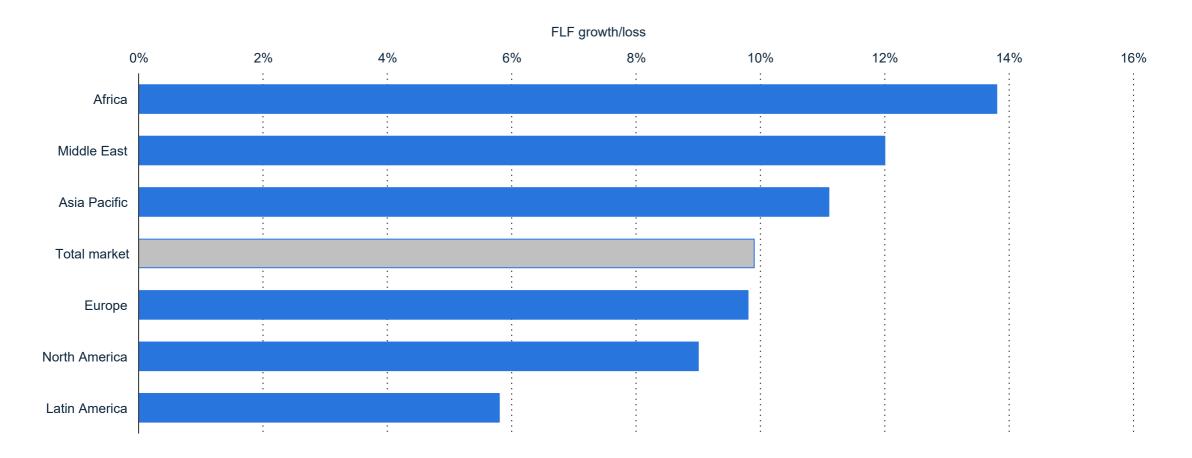
Belly and freighter capacities in air cargo worldwide January 2020 - July 2021





Year-on-year freight load factor (FLF) change in December 2020, by region

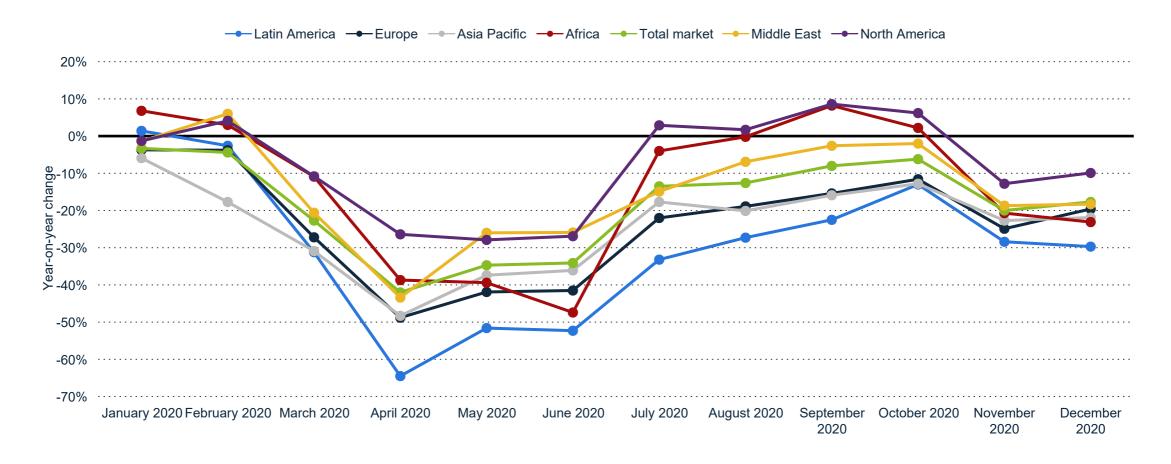
Aviation industry - monthly freight load factor by region 2020





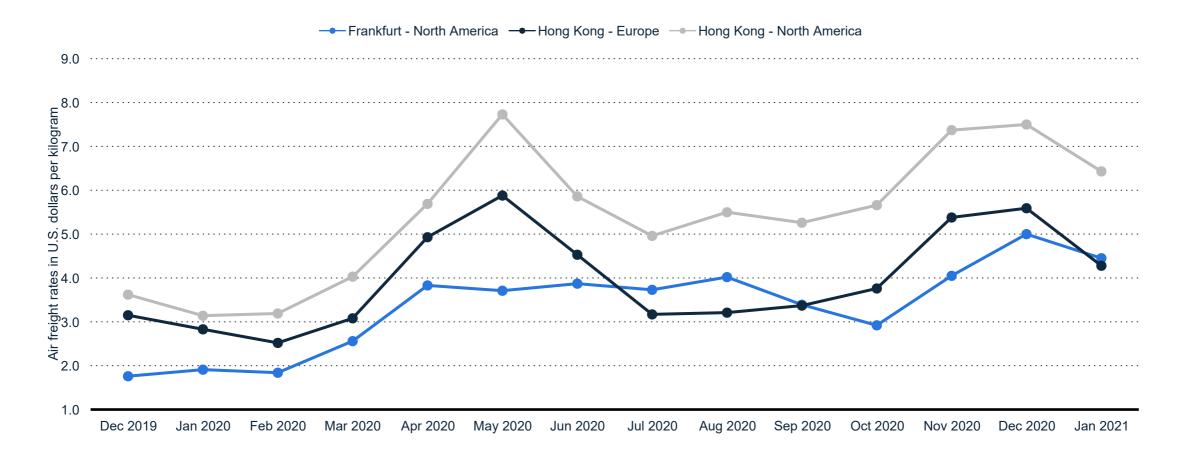
Year-on-year freight tonne kilometer (FTK) change from January to December 2020, by region

Global aviation industry: FTK change January-December 2020



Impact of coronavirus on major global air freight rates between December 2019 to January 2021 (in U.S. dollars per kilogram)

Air freight rate change since the beginning of COVID-19 outbreak 2019-2021



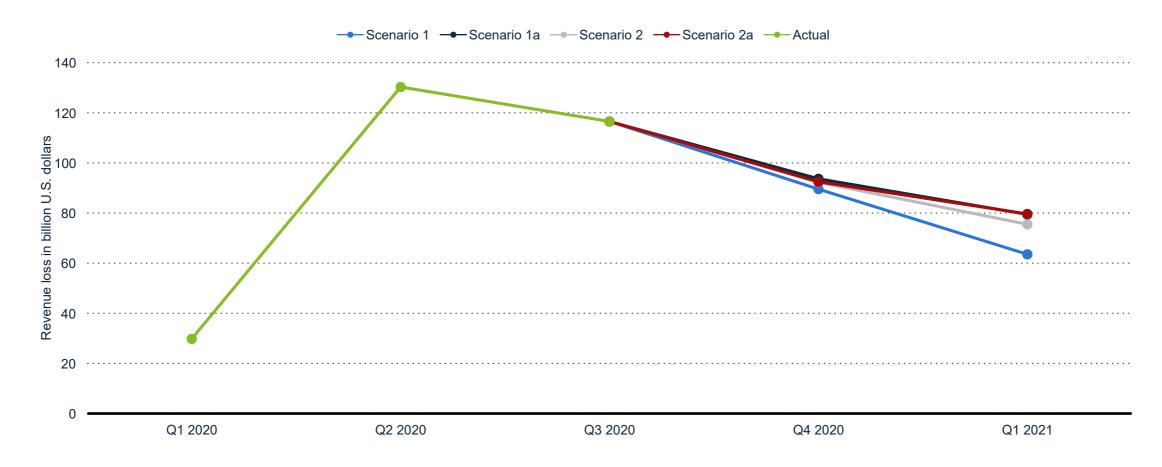
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Impact on airlines and airports



Airline revenue loss due to coronavirus (COVID-19) from Q1 2020 to Q1 2021, by scenario (in billion U.S. dollars)*

Revenue loss of the aviation industry by scenarios 2020-2021



Note(s): Worldwide; Q1 to Q3 2020

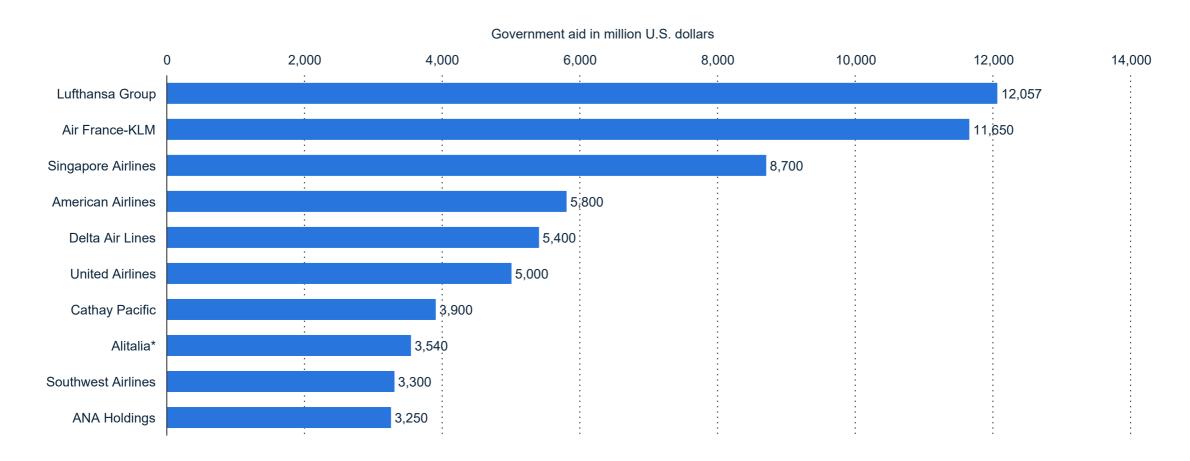
Further information regarding this statistic can be found on page 56.

Source(s): ICAO; <u>ID 1106362</u>

Impact on airlines and airports

Government aid to airlines due to COVID-19 from January to August 2020, by airline (in million U.S. dollars)

Government aid to airlines due to COVID-19 by airline 2020



Note(s): Worldwide; January to August 2020

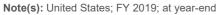
Further information regarding this statistic can be found on page 57.

Source(s): OAG; <u>ID 1176125</u>

Total debt and liquidity capacity of leading U.S. airline groups in 2019

Liquidity and total debt balances of leading U.S. airline groups 2019

	Total debt (in billion U.S. dollars)	Cash and short-term investment (in billion U.S. dollars)	Total debt to EBITDA ratio
Southwest	4	4	0.63
Alaska	3.2	1.5	0.97
Delta	17	3	1.21
JetBlue	3.1	1.3	1.74
United	20	5	2.17
Spirit	3.6	1	2.98
American	33	4	4.04



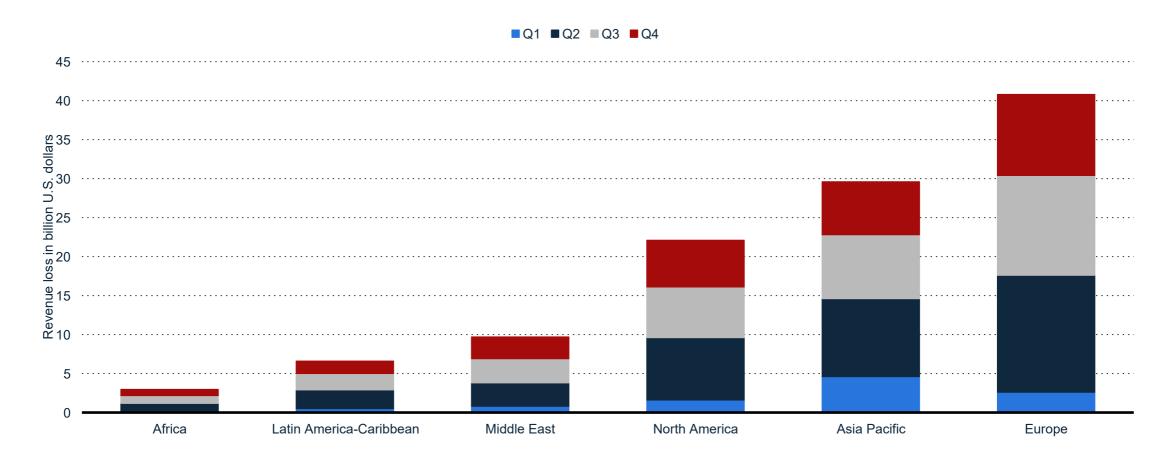
Further information regarding this statistic can be found on page 58.

Source(s): CAPA; Wall Street Journal; ID 1104869



Estimated revenue losses of airports worldwide due to coronavirus in 2020, by region and quarter (in billion U.S. dollars)

Coronavirus: quarterly revenue loss of airports by region 2020



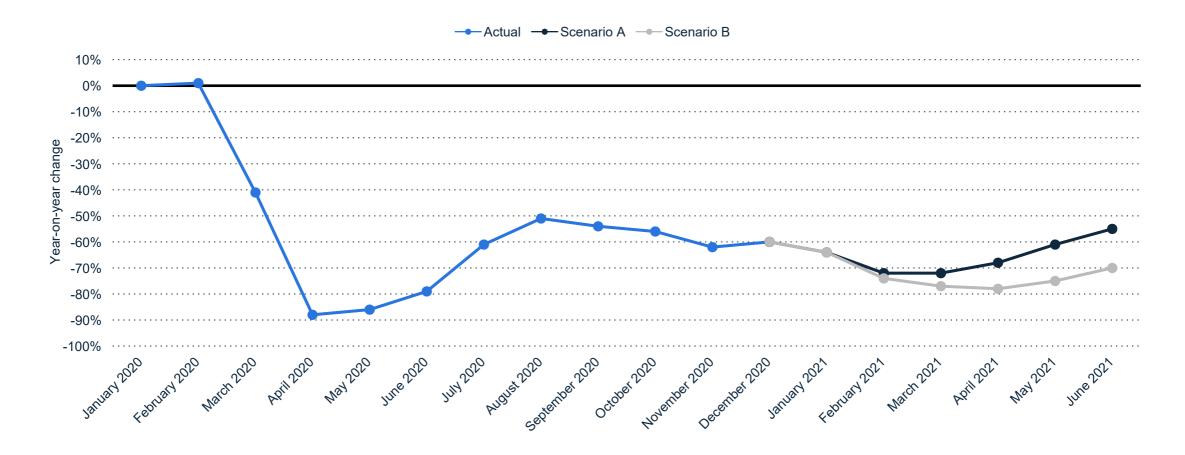


Further information regarding this statistic can be found on page 59.

Source(s): ACI; ID 1106985

Year-on-year change in passenger traffic in Europe from January 2020 to June 2021

Coronavirus: passenger traffic change in Europe 2020





Source(s): Eurocontrol; ID 1107029

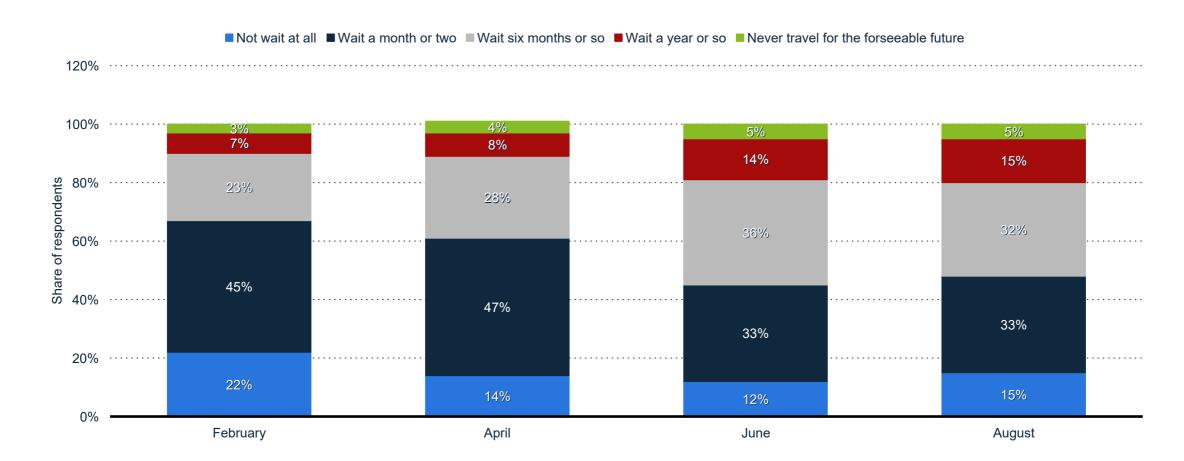
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Public opinion



Once the pandemic has subsided, how long will you wait, if at all, to return to your usual travel plans?

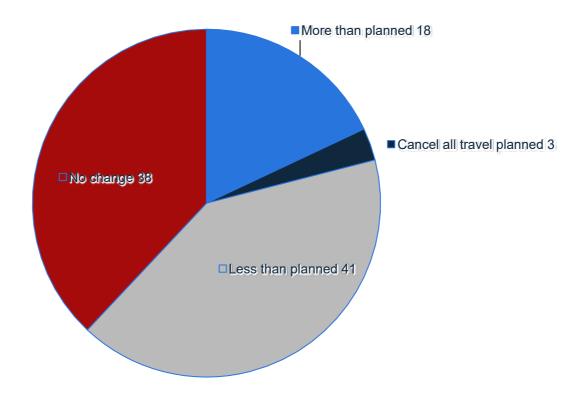
Willingness of travelers to fly in the aftermath of the coronavirus pandemic 2020





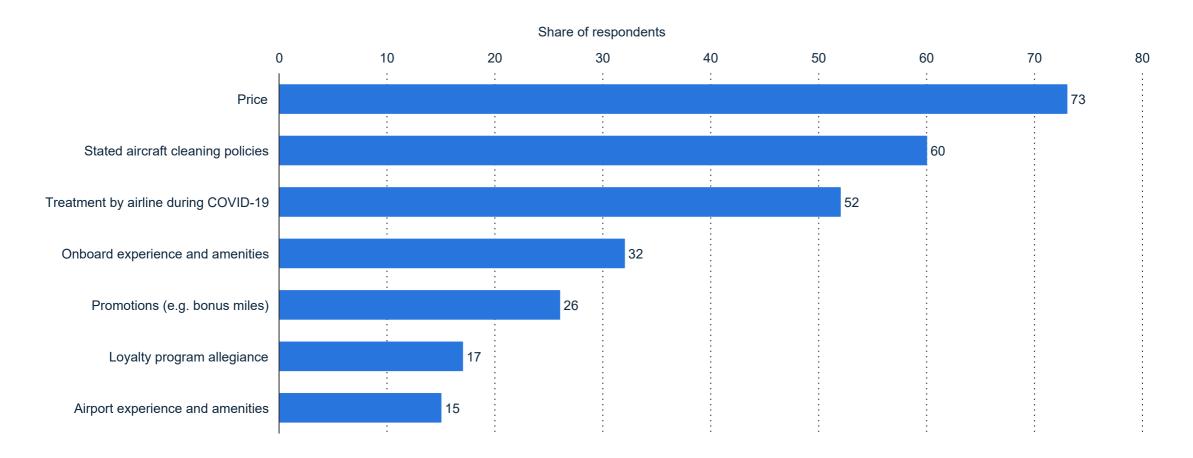
Will you travel more, the same, or less than you had planned for leisure over the next 18 months in the aftermath of the COVID-19?

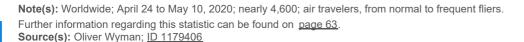
Expected flight preferences of people in the aftermath of the coronavirus 2020



Main factors influencing air travel decisions in the aftermath of the coronavirus in 2020

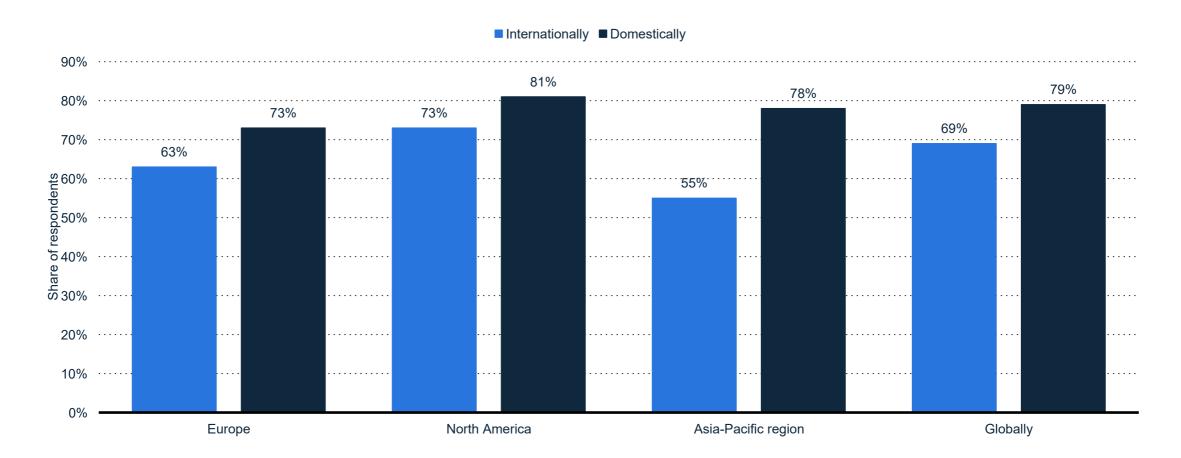
Factors impacting flight purchase preferences of travelers post-coronavirus 2020





Plan of air travelers to fly in the next six months given the coronavirus pandemic 2020, by region

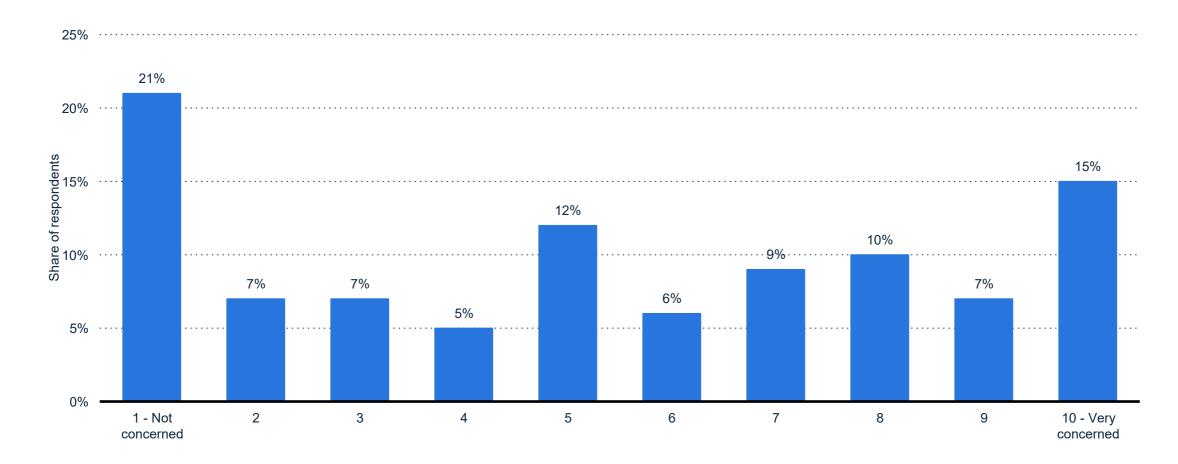
Impact of COVID-19 on passengers' willingness to fly by region 2020





How concerned are you that you will catch coronavirus while traveling?

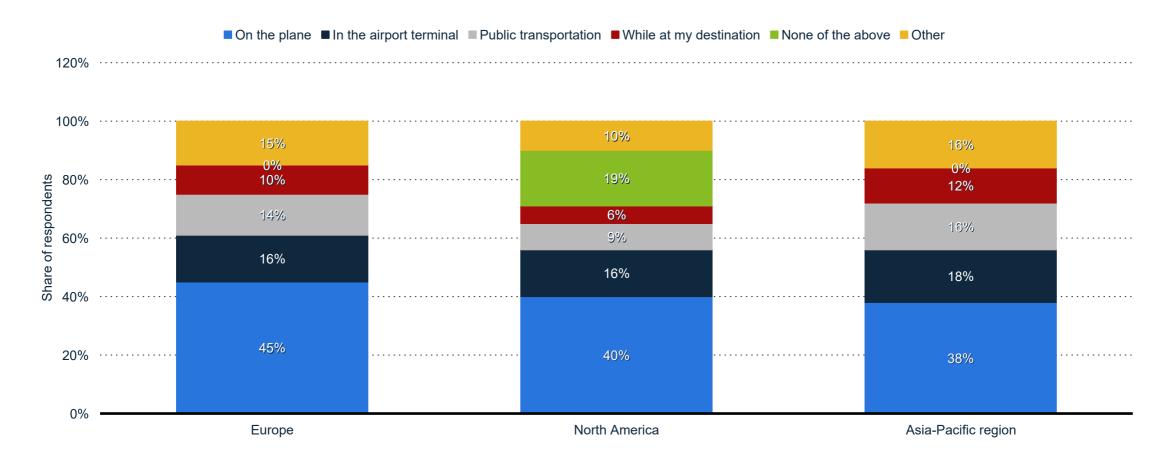
Concern of air passengers to contract COVID-19 while traveling 2020

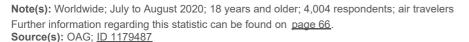




Concern of passengers to contract coronavirus worldwide in 2020, by type and region

Catching COVID-19 worry during a shared transportation by type 2020





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References



Number of scheduled passengers boarded by the global airline industry from 2004 to 2021 (in millions)

Global air traffic - scheduled passengers 2004-2021

Source and methodology information

Source(s) IATA; ICAO
Conducted by IATA; ICAO

Survey period 2004 to 2019

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics *n.a.*

Published by IATA

Publication date November 2020

Original source IATA Fact Sheet: Industry Statistics, page 1

Website URL <u>visit the website</u>

Notes: * This figure was taken from a previous edition which was released prior to

the coronavirus outbreak and can be accessed here .** Forecast ***
Estimate Figures prior to 2015 were taken from previous reports.

Description

In 2020, due to the coronavirus pandemic , the number of scheduled passengers boarded by the global airline industry dropped to only 1.8 billion people. This represents a 60 percent loss in global air passenger traffic . Airline passenger traffic The number of scheduled passengers handled by the global airline industry has increased in all but one of the last 15 years. Scheduled passengers refer to the number of passengers who have booked a flight with a commercial airline. Excluded are passengers on charter flights, whereby an entire plane is booked by a private group. As of 2018, the Asia Pacific region had the highest share of airline passenger traffic accounting for around one third of the global total. The region also includes the busiest air routes . Reasons for growth Three main reasons are generally cited to explain the ongoing global growth in air travel. First is the increase in low-cost carriers , who have almost doubled their market share over the last 15 years. Second is the growth of the global middle class , especially in China. Both these developments have increased the number of consumers able to afford air travel. Finally, there is also the growth in airport infrastructure spending , led by the Asia Pacific region, which has increased the global carrying capacity.



Worldwide revenue with passengers in air traffic from 2005 to 2021 (in billion U.S. dollars)

Air traffic - worldwide revenue with passengers 2005-2021

Source and methodology information

Source(s) IATA; ICAO
Conducted by IATA: ICAO

Survey period 2005 to 2020

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Published by IATA

Publication date November 2020

Original source IATA Fact Sheet: Industry Statistics, page 1

Website URL visit the website

Notes: * This figure was taken from a previous edition which was released prior to

the coronavirus outbreak and can be accessed here . ** Forecast *** Estimate Figures prior to 2015 were taken from previous reports.

Description

Due to the coronavirus outbreak, commercial airlines' passenger revenue came to only 191 billion U.S. dollars. Impact of COVID-19 on worldwide revenue with passengers in air traffic Over recent decades, the aviation industry experienced an increasing trend until 2019. Between 2009 and 2019, air passenger revenue in the global aviation industry grew from about 374 billion U.S. dollars to around 612 billion U.S. dollars in 2019. Nevertheless, the coronavirus (COVID-19) pandemic reversed the growth trend for at least during 2020. Due to the COVID-19 pandemic, the airline passenger revenue loss was estimated at around 314 billion U.S. dollars in 2020. In the absence of government aid, airline groups cannot accommodate a recessionary shock similar to the magnitude and persistence of the COVID-19. Therefore, numerous airline groups have requested for large government fiscal help package to survive the coronavirus crisis. As of September 2020, governments across the globe already allocated over 161 billion U.S. dollars to airlines due to COVID-19. Evolution of the aviation industry Although not often feted for its innovative excellence, the aviation industry has seen a couple of major changes over the past decade, including consolidation, as well as the emergence of regional and (ultra) low-cost carriers (LCCs). While Ryanair and Southwest Airlines are the main carriers in the low-cost category, several new players, such as Iceland's WOW Air, are on the horizon. Globally, the market share of LCCs increased rapidly over the last decade. On the regional distribution, the share of LCCs in the Latin American aviation market increased from 25 percent in 2008 to 45 percent in 2020. Given the current circumstance, the aviation industry is exposed to radical uncertainty in the aftermath of the COVID-19 pandemic. According to a 2020 survey, 55 percent of air travelers from the Asia-Pacific region plan to fly internationally in the next six months. Similarly, 63 percent of surveyed [...] For more information visit our Website

Estimated annual growth rates for passenger air traffic from 2020 to 2039, by region*

Air traffic - passenger growth rates forecast 2020-2039

Source and methodology information

Source(s) Boeing
Conducted by Boeing
Survey period 2020

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.
Special characteristics n.a.

Published by Boeing

Publication date October 2020

Original source Commercial Market Outlook 2020-2039, page 8

Website URL <u>visit the website</u>

Notes: * Values are based on revenue passenger kilometers.

Description

The graph depicts the projected annual growth rates for passenger and cargo air traffic from 2020 to 2039, broken down by region. By 2039, revenue passenger kilometers in Africa are expected to grow by 5.5 percent. Forecast - passenger and air cargo traffic As a result of increasingly affordable flight rates and cheaper oil prices, passenger and cargo air traffic are estimated to grow substantially through 2039. Africa is the region where passenger air traffic is expected to experience the highest growth rate . Between 2020 and 2039, the airline industry is projected to increase its carriers' revenue passenger kilometers by about four percent. Commercial airlines stand to greatly benefit from the increased passenger demand in global air traffic . In 2019, there was a 4.2 percent growth in global air traffic passenger demand. The same year, commercial airlines worldwide generated combined revenue of 838 billion U.S. dollars. The United States is home to the world's busiest airport: Hartsfield-Jackson Atlanta International (IATA:ATL) enplaned more than 53.8 million passengers in 2019. Surprisingly, the United States scored a mere 5.8 in the 2019 air traffic infrastructure quality ranking published by the World Economic Forum. Meanwhile, Singapore's air traffic infrastructure received a rating of 6.7 on a scale of 1 to 7, with 7 being the highest rating possible.

Airline passenger revenue loss due to coronavirus outbreak worldwide in 2020, by region of airline registration (in billion U.S. dollars)*

COVID-19's impact estimate on passenger revenue of airlines by region 2020

Source and methodology information

Source(s) IATA

Conducted by IATA

Survey period Q2 2020

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Published by IATA

Publication date April 2020

Original source COVID-19 Updated Impact Assessment, page VIII

Website URL visit the website

Notes: * A three months lockdown was assumed until the end of Q2 and

international travel restrictions are assumed in this assessment to be reduced more slowly, with only 50 percent of inhibited international RPKs

recovered by Q4 (after reduction due to recession impact).

Description

Given that the novel coronavirus (COVID-19) outbreak intensifies, annual estimates for the aviation industry adjusted. As of April 2020, annual passenger revenue in the Asia Pacific region was forecasted to decline by approximately 113 billion U.S. dollars from the previous year. COVID-19 and the global aviation Amid the coronavirus (COVID-19) pandemic, countries and organizations began to implement precautionary measures to contain the spread of COVID-19 for a public purpose. Some of the preventive methods included imposing lockdowns or encouraging no travel unless necessary by governments. Similarly, businesses adopted a multitude of strategies to cope with the challenge, such as avoiding business travels or minimizing them. When aggregated, these measures by the governments and businesses affected the aviation industry adversely. Starting from February 2020, the year-on-year revenue-passenger kilometer (RPK) change on international routes continued to decline, reaching roughly 99 percent of decline by April 2020. This decline implies an almost complete cancellation of air travel across the globe. Just like previous months, the enormous negative effect of COVID-19 on passenger aviation continues to persist as of September 2020. Consequently, airlines were desperately urged to request government aid. For instance, Lufthansa Group received over 12 billion U.S. dollars and Air France - KLM roughly 11.7 billion U.S. dollars in government bailout package. Despite all, the vulnerability of airlines perseveres as the coronavirus pandemic exposes the globe to the second wave of infections across countries. Financial performance of airlines amid COVID-19 Due to the nature of business activity involved, airline groups usually hold fewer liquidity accounts in their asset portfolios. This tendency is especially the case for traditional airlines, although somewhat less true for low-cost carriers (LCCs). While analyzing the 2019 financial balance sheet data of European airlin [...] For more information visit our Website



Air passenger traffic change due coronavirus (COVID-19) from Q1 2020 to Q1 2021, by scenario (in millions)*

Passenger change in the aviation industry by scenarios 2020-2021

Source and methodology information

Source(s) ICAO
Conducted by ICAO

Survey period Q1 to Q3 2020 Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Published by ICAO

Publication date October 2020

Original source Effects of Novel Coronavirus (COVID-19) on Civil Aviation: Economic

Impact Analysis, page 48

Website URL visit the website

Notes: * The source defines the following scenarios: Scenario 1 - "Nike swoosh-

and W-shaped": Path 1: smooth capacity recovery with demand picking up but a slow rate growth; Path 1a: smooth capacity recovery but then turning back down due to over-capacity. Scenario 2 - "U- and L-shaped": Path 2:

accelerat [...] For more information visit our Website

Description

In the fourth quarter of 2020, it is estimated that global air passenger traffic will have a reduction of 704 million passengers in a U-shaped scenario due to the coronavirus outbreak. For further information about the coronavirus (COVID-19) pandemic, please visit our dedicated Fact and Figures page.

Unemployment impact of coronavirus on industries supported by air transport worldwide in 2020, by region (in millions)*

Job loss in industries associated with air travel due to COVID-19 by region 2020

Source and methodology information

Source(s) IATA

Conducted by IATA

Survey period 2020

Region(s) Worldwide

Number of respondents n.a. Age group n.a.

Special characteristics *n.a.*Published by IATA

Publication date April 2020

Original source IATA Economics: COVID-19, page 10

Website URL <u>visit the website</u>

Notes: * The estimates are based on the 38 percent decline in revenue

passenger kilometers during 2020.

Description

As of April 7, 2020, it is estimated that roughly 11.2 million people working in air travel related industries in the Asia Pacific region will lose their jobs due to the coronavirus outbreak. In the Middle East this number will be equivalent to under one million unemployed people.

Government aid to airlines due to COVID-19 as of September 2020, by type (in billion U.S. dollars)

Types of government aid to airlines due to COVID-19 as of September 2020

Source and methodology information

Source(s) IATA
Conducted by IATA

Survey period as of September 2020

Region(s) Worldwide

Number of respondents n.a.

Age group n.a.

Special characteristics n.a.

Published by IATA

Publication date October 2020

Original source COVID-19 Outlook for airlines' cash burn, page III

Website URL <u>visit the website</u>

Notes: n.a.

Description

As of September 2020, governments around the world intervened to the economy through various types of governmental aids to support airlines and avoid any major bankruptcy filing in the aviation industry. Until the end of September 2020, aid issued directly to airlines amounted to close to 100 billion U.S. dollars in response to the coronavirus>(COVID-19) shock.

Year-on-year change of weekly flight frequency of global airlines from January 6 to January 4, 2021, by country

Weekly flights change of global airlines due to COVID-19 as of January 2021

Source and methodology information

Source(s) OAG Schedules Analyser

Survey period week of January 6 to January 4, 2021

OAG Schedules Analyser

Region(s) Worldwide

Number of respondents *n.a.*

Conducted by

Age group n.a.

Special characteristics n.a

Published by OAG Schedules Analyser

Publication date January 2021

Original source oag.com

Website URL visit the website

Notes: n.a.

Description

The impact of the novel coronavirus (COVID-19) can be seen on every sector of the most affected countries as well as globally. For the week starting January 4, 2021, the number of scheduled flights worldwide was down by 43.5 percent compared to the week of January 6, 2020. The impact of COVID-19 on the Chinese aviation reached a peak in the week starting February 17, 2020, with flight numbers down by 70.8 percent. Aviation market prior to COVID-19 outbreak Before the coronavirus outbreak hit the globe, the aviation industry was improving at a steady pace across countries. For instance, the projected annual growth of revenue ton-miles (RTM) for international flights by U.S. commercial air carriers was at roughly four percent for the period between 2020 and 2040. Prior to the coronavirus outbreak, the forecasted aircraft maintenance, repair and overhaul (MRO) market size in North America was over 22 billion U.S. dollars in 2020. After the adjustments with respect to radical changes driven by coronavirus shock, the North American MRO market is now estimated to generate roughly 12 billion U.S. dollars during the same period. Besides, it was estimated that between 2019 and 2038 over 260,000 technicians in the aviation industry will be demanded in the Asia Pacific region only. Aviation market after COVID-19 shock Coronavirus pandemic hit the passenger aviation much worse than cargo aviation because of lockdowns and bans restricting international travel across the globe. As a result of persisting COVID-19 shocks, passenger aviation is expected to lose roughly 314 billion U.S. dollars in 2020. Even though some countries started to recover as the coronavirus spread is being contained, the desired level of recovery may take at least several quarters or years. The change of airlines' capacity will most likely remain at least ten percent below the 2019 levels. The longer recovery periods are attributed to several factors including the COVID-19 economic recession, confidence of [...] For more information visit our Website



Year-on-year revenue-passenger kilometer (RPK) change on international routes from January to December 2020, by region

Monthly international revenue-passenger kilometers (RPK) change by region 2020

Source and methodology information

Source(s) IATA
Conducted by IATA

Survey period January to December 2020

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a. Special characteristics n.a.

Published by IATA

Publication date February 2021

Original source Air Passenger Market Analysis, page 4

Website URL visit the website

Notes: According to the source, this statistic includes the members of IATA,

which encompass 290 airlines that account for 82 percent of global flights.

Data for prior months can be accessed here

Description

The year-on-year revenue-passenger kilometers (RPK) change on international routes gradually declined from January to December 2020 due to the coronavirus outbreak. Compared to December 2019, international RPKs were down 94.7 percent for Asian Pacific airlines in December 2020. Global passenger aviation Since 2004, scheduled passenger traffic increased globally, reaching 4.5 billion travelers in 2019. One of the major reasons behind this growth is the increasing share of low cost carriers in the aviation industry, attaining 31 percent of the total market share in 2018, which is twice as large as the market share of low cost carriers in 2006. COVID-19 impact on passenger aviation The corona virus as a health shock impacts almost every dimension of the economy and society. Its implications on the global aviation industry revealed to be far reaching, as most of the airliners can't continue their operations due to lockdowns and other border control measures taken by the governments. As of April 2020, the estimated impact of COVID-19 on the aviation industry stood at 314 billion U.S. dollars in revenue loss. As the COVID-19 crisis persists, the decade long growth of passenger aviation could be disrupted throughout 2020. In the first half of 2020, air passenger traffic globally declined by at least 1.2 billion passengers. For further information about the coronavirus (COVID-19) pandemic, please visit our dedicated Fact and Figures page.

Passenger load factor (PLF) on international flights from January to December 2020, by region

Monthly passenger load factor (PLF) on international flights by region 2020

Source and methodology information

Source(s) IATA
Conducted by IATA

Survey period January to December 2020

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Published by IATA

Publication date February 2021

Original source Air Passenger Monthly Analysis, page 4

Website URL visit the website

Notes: Based on data gathered from IATA members. IATA members generate 82

percent of global air traffic. Data for prior months can be accessed here.

Description

The statistic represents the monthly passenger load factor (PLF) of international flights from January to December 2020, by region. Due to the coronavirus outbreak worldwide, airlines in the Asia Pacific region had an international passenger load factor of 32.1 percent in December 2020, down from 81.6 percent in the first month of the year. For further information about the coronavirus (COVID-19) pandemic, please visit our dedicated Fact and Figures page. Passenger load factor When it comes to international passenger boardings, John F. Kennedy International Airport in New York (JFK) is the busiest airport in the United States, its most in-demand transatlantic route being the passage to London Heathrow (LHR). Aircraft that are used on flight routes with a very high passenger demand require a high seating capacity to transport as many passengers as possible on board. The full utilization of an aircraft's seating capacity is an effective measurement for airlines to increase revenue. To give an example, the largest Dreamliner variant seats up to 330 passengers, and the flight distance from John F. Kennedy airport to London Heathrow comes to around 3,450 miles. The passenger load factor is the quotient of the number of seat miles and passenger miles traveled. While seat miles are calculated by multiplying the number of seats on board with the number of miles travelled, passenger miles are the product of the amount of miles traveled and the number of passengers carried. A fully-seated Dreamliner traveling from JFK to LHR carries the same number of seat and passenger miles and thus has a passenger load factor of one. In other words, its seating capacity is fully utilized.



Year-on-year change on seat capacity due to coronavirus in 2020 and 2021, by quarter and region of airline registration*

Coronavirus: year-on-year change on seat capacity by quarter & region 2020-2021

Source and methodology information

Source(s) ICAO
Conducted by ICAO

Survey period Q1 to Q3 2020 Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.Special characteristics n.a.Published by ICAO

Publication date November 2020

Original source Effects of Novel Coronavirus (COVID-19) on Civil Aviation: Economic

Impact Analysis, pages 71, 84, 97, 110, 123 & 136

Website URL visit the website

Notes: * Figures are based on a V-shaped recovery taking into consideration

airlines' most recent expectations, a supply based on latest updates of airline schedules, which are adjusted accordingly to the evolving situation

and a demand based on a quick recovery to business as usual.

Description

In the second quarter of 2020, European airlines had a 90.1 percent loss in seat capacity. As a response to the novel coronavirus (COVID-19) outbreak, since the beginning of 2020 more and more countries across the globe shut down borders, thus, cancelling all flights to contain the spread of the virus.

Daily number of passengers screened at TSA checkpoints in the United States from March 2019 to December 2020

Coronavirus: TSA checkpoint travel numbers at U.S. airports 2019-2020

Source and methodology information

Source(s) TSA
Conducted by TSA

Survey period March 2019 to December 2020

Region(s) United States

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Published by TSA

Publication date January 2021

Original source tsa.gov

Website URL visit the website

Notes: n.a.

Description

On December 31, 2020, the Transportation Security Administration (TSA) screened 874,406 passengers at U.S. airports, compared with just under 2.4 million passengers screened in the same weekday one year earlier. Passenger aviation and the coronavirus As a response to the novel coronavirus (COVID-19) outbreak, since the beginning of 2020 more and more countries across the globe shut down borders, thus cancelling all international flights to contain the spread of the virus. In April 2020, revenue passenger kilometers (RPK) declined by 98.4 percent on all international routes. Similarly, compared to the previous year, airlines decreased their capacity by roughly 90 percent in Europe during the second quarter of 2020. In short, the estimated loss caused by COVID-19 outbreak is at least over 98 billion U.S. dollars for the first half of 2020. Airlines after the COVID-19 Before the COVID-19 paralyzed the world economy, countries and organizations were over-optimistic, even while the COVID-19 was emerging in China. Despite all efforts, COVID-19 became a deep-rooted health crisis that will presumably lead to a massive economic crisis. This may lead to permanent changes in the economic structure, for instance requiring a more resilient financial balance of airline groups. Even before the coronavirus pandemic. some of the largest airline groups had concerning financial balances. For example, American Airlines had a total debt to EBITDA (earnings before interest, taxes, depreciation and amortization) ratio equivalent to 4.04. When the coronavirus hit, those companies with the least sustainable financial balances were hit the worst. A similar pattern existed also for many European airline groups. Norwegian Airlines had enough liquid assets to sustain its fixed business costs covered only for 26 days. Therefore, companies with similar business model necessarily needed government support.



Worldwide air freight traffic from 2004 to 2021 (in million metric tons)

Air cargo traffic - worldwide volume 2004-2021

Source and methodology information

Source(s) IATA

Conducted by IATA; ICAO

Survey period 2004 to 2020

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics *n.a.*

Published by IATA

Publication date November 2020

Original source IATA Fact Sheet: Industry Statistics, page 1

Website URL visit the website

Notes: * This figure was taken from a previous edition which was released prior to

the coronavirus outbreak and can be accessed here . ** Forecast *** Estimate Figures prior to 2015 were taken from previous reports.

Description

Following somewhat slow growth in the early 2010's, the global volume of air freight increased rapidly in recent years with freight volumes reaching 54.2 million metric tons in 2020. The global air freight market The air cargo market refers to the transportation of goods via air, either by commercial airlines or specialized freight companies . The largest flows of air cargo are in and between East Asia and the United States , with airports in these regions dominating the top ten in terms of freight volume. Drivers of growth Two factors have strongly influenced the growth of the air freight market. The first is the global increase of e-commerce . This has connected retailers and consumers in different geographic locations across both domestic and international markets, driving up the demand for delivery services in the process. Second is the cost of airline fuel . The period circa 2012 where airline fuel prices reached historic highs coincides with slow growth in air freight volumes, while the increasing growth in freight volume seen from around 2016 coincides with a sharp fall in the cost of airline fuel.

Worldwide revenue of cargo airlines from 2004 to 2021 (in billion U.S. dollars)

Air cargo traffic - worldwide revenue 2004-2021

Source and methodology information

Source(s) IATA

Conducted by IATA; ICAO

Survey period 2004 to 2020

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Published by IATA

Publication date November 2020

Original source IATA Industry Statistics, page 1

Website URL visit the website

Notes: * This figure was taken from a previous edition which was released prior to

the coronavirus outbreak and can be accessed here . ** Forecast *** Estimate Figures prior to 2015 were taken from previous reports.

Description

In 2020, despite the coronavirus outbreak, the cargo airline industry generated revenue streams of 117.7 billion U.S. dollars. Air cargo and the COVID-19 pandemic Amid the coronavirus (COVID-19) pandemic, the global air cargo industry demonstrated a confounded business performance. Although the level of air freight volume declined, the total revenue generation increased. While passenger aviation was hit harshly and swamped by the deteriorating business conditions, the global air freight volume decreased by roughly 20 percent in March 2020 compared to March 2019 levels. Contrary to intuitive beliefs, widely imposed lockdowns across countries and declining industrial production during the coronavirus pandemic did somewhat positively affect revenue levels of the air cargo market. During 2020, the air cargo companies generated higher revenue than expected, which could be mostly driven by the rising prices for rapid transport of goods on airplanes. For example, the number of cargo flights in China and Germany increased during March 2020 compared to months before the COVID-19 hit widely. Airfreight forwarding The process of facilitating the transportation network of freight by air is the main task of airfreight forwarders. With the help of freight forwarders, industrial organizations design business operations across the globe. Consequently, airfreight forwarders are one of the facilitators of the increasingly interconnected international trade relations. Although a multitude of companies strives to achieve more and more market share in airfreight forwarding, some are more successful than others as a result of a well-developed business strategy. As of 2019, DHL Supply Chain & Global Forwarding, Kuehne +Nagel, and DB Schenker Logistics were the three leading airfreight forwarders based on the volume of freight handled. Advancements in global trade creates an incentive for an expansion of opportunity space for air freight forwarders. By 2024, the size of the total freight [...] For more information visit our Website



Top commodity increase in global air cargo trade between April and May 2020 (in 1,000 metric tons)

Increase in top commodities in global air cargo trade April-May 2020

Source and methodology information

Source(s) Accenture; Seabury Consulting

Conducted by Seabury Consulting

Survey period April and May 2019 and 2020

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Published by Accenture

Publication date July 2020

Original source COVID-19: Impact on air cargo capacity

Website URL <u>visit the website</u>

Notes: n.a.

Description

Within the period from April through May 2020, there has been a large increase in various commodities in air cargo trade globally. Face masks experienced the most notable increase with 235,000 metric tons more transported within this period compared to the same period last year. The top ten list is dominated by a variety medical equipment such as medical gloves, gowns and ventilators.

Global air cargo capacity share between January 2020 and July 2021, by aircraft type

Belly and freighter capacities in air cargo worldwide January 2020 - July 2021

Source and methodology information

Source(s) Lufthansa Consulting; IATA

Conducted by Lufthansa Consulting; IATA

Survey period January 2020 to August 2020

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Published by Lufthansa Consulting

Publication date August 2020

Original source Lufthansa Consulting. The coming air cargo reality check: how the

industry will evolve through COVID-19, page 3

Website URL visit the website

Notes: * Values for September 2020 throughout July 2021 are forecasts.

Description

As of August 2020, the share of freighter capacity in the air cargo segment was approximately 78 percent. Prior to the coronavirus pandemic, the balance between belly freight and freighter air cargo amounted to a 50-50 share. In the aftermath of COVID-19, it is expected that freighter air cargo will lead in the upcoming months. For further information about the COVID-19 pandemic, please visit our dedicated Facts and Figures page.

Year-on-year freight load factor (FLF) change in December 2020, by region

Aviation industry - monthly freight load factor by region 2020

Source and methodology information

Source(s) IATA
Conducted by IATA

Survey period December 2019 and December 2020

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics *n.a.*

Published by IATA

Publication date February 2021

Original source Air Freight Market Analysis, page IV

Website URL visit the website

Notes: n.a.

Description

Compared to the previous year, the global aviation industry's freight load factor (FLF) recovered despite the coronavirus outbreak in December 2019. The freight load factor (FLF) for airlines in the Asia Pacific region increased by 11.1 percent in December 2020. Air freight market worldwide Air freight is a crucial means of transport of goods for industries that perform under restricted timespan. Its operations enable a firm to realize a transportation within a few hours instead of days or weeks. Nonetheless, it is the least cost-effective for most of the industrial organizations. Between 2009 and 2019, air freight traffic continued to recover back to its pre-2008 crisis level. The global air freight market size is forecasted to increase between 2019 and 2022 exponentially, reaching 37 million metric tons. Impact of COVID-19 on the air freight market Despite the slowdowns in the air freight levels since 2020, countries imposed less strict measures on air freight cargo compared to the passenger aviation, which is estimated to experience a 314 billion U.S. revenue loss in 2020. As the cross-border transportation is banned in many countries, air freight cargo may become an alternative to transport goods until the COVID-19 has been contained. Besides, since the beginning of 2020, the air freight rates between Hong Kong and Europe, and Hong Kong and North America have declined presumably due to a reduction in total demand. For further information about the coronavirus (COVID-19) pandemic, please visit our dedicated Fact and Figures page.

Year-on-year freight tonne kilometer (FTK) change from January to December 2020, by region

Global aviation industry: FTK change January-December 2020

Source and methodology information

Source(s) IATA
Conducted by IATA

Survey period January 2019 to December 2020

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Published by IATA

Publication date February 2021

Original source Air Freight Market Analysis, page IV

Website URL <u>visit the website</u>

Notes: Data for prior months can be accessed here.

Description

This statistic represents the worldwide aviation industry's year-on-year freight tonne kilometer (FTK) change from January to December 2020, by region. Due to the coronavirus outbreak worldwide, airlines in the Asia Pacific region saw a decrease in freight tonne kilometers of 21.9 percent in December 2020 compared with December 2019. For further information about the coronavirus (COVID-19) pandemic, please visit our dedicated Fact and Figures page.

Impact of coronavirus on major global air freight rates between December 2019 to January 2021 (in U.S. dollars per kilogram)

Air freight rate change since the beginning of COVID-19 outbreak 2019-2021

Source and methodology information

Source(s) Air Cargo News; TAC Index

Conducted by TAC Index

Survey period December 2019 to January 2021

February 2021

Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Publication date

Published by Air Cargo News

Original source aircargonews.net

Website URL visit the website

Notes: n.a.

Description

In January 2021, airfreight rates between Hong Kong and North America were roughly 6.43 U.S. dollars per kilogram. As the novel coronavirus (COVID-19) outbreak spreads across the globe, many more countries restrict the transportation of goods across borders or ban it, thus, affecting the international airfreight rates as well.

Airline revenue loss due to coronavirus (COVID-19) from Q1 2020 to Q1 2021, by scenario (in billion U.S. dollars)*

Revenue loss of the aviation industry by scenarios 2020-2021

Source and methodology information

Source(s) ICAO
Conducted by ICAO

Survey period Q1 to Q3 2020 Region(s) Worldwide

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Published by ICAO

Publication date November 2020

Original source Effects of Novel Coronavirus (COVID-19) on Civil Aviation: Economic

Impact Analysis, page 55

Website URL visit the website

Notes: * The source defines the following scenarios: Scenario 1 - "Nike swoosh-

and W-shaped": Path 1: smooth capacity recovery with demand picking up but a slow rate growth; Path 1a: smooth capacity recovery but then turning back down due to over-capacity. Scenario 2 - "U- and L-shaped": Path 2:

accelerat [...] For more information visit our Website

Description

In the fourth quarter of 2020, it is estimated that airlines worldwide will have a revenue loss of 92.26 billion U.S. dollars in a U-shaped scenario. For further information about the coronavirus (COVID-19) pandemic, please visit our dedicated Fact and Figures page.

Government aid to airlines due to COVID-19 from January to August 2020, by airline (in million U.S. dollars)

Government aid to airlines due to COVID-19 by airline 2020

Source and methodology information

Source(s) OAG
Conducted by OAG

Survey period January to August 2020

Region(s) Worldwide

Number of respondents n.a.Age group n.a.Special characteristics n.a.

Published by OAG

Publication date September 2020

Original source Strapped for cash: how airlines can survive the winter season, page 13

Website URL <u>visit the website</u>

Notes: n.a.

Description

From January to August 2020, the German major airline Lufthansa Group received over 12 billion U.S. dollars as aid from the German government. Until the end of September 2020, aid issued directly to airlines amounted to almost 100 billion U.S. dollars in response to the coronavirus>(COVID-19) shock.

Total debt and liquidity capacity of leading U.S. airline groups in 2019

Liquidity and total debt balances of leading U.S. airline groups 2019

Source and methodology information

Source(s) CAPA; Wall Street Journal

Conducted by CAPA

Survey period FY 2019

Region(s) United States

Number of respondents *n.a.*

Age group n.a.

Special characteristics at year-end

Published by CAPA

Publication date March 2020

Original source centreforaviation.com

Website URL visit the website

Notes: n.a.

Description

Amid the novel coronavirus (COVID-19) outbreak, Southwest and Alaska Airlines have the best total debt to earnings before interest, tax, depreciation and amortization (EBITDA) ratio in their fiscal year of 2019, at 0.63 and 0.97. On the other side, American Airlines has the highest level of total debt to EBITDA ratio, at 4.04 which is concerning.

Estimated revenue losses of airports worldwide due to coronavirus in 2020, by region and quarter (in billion U.S. dollars)

Coronavirus: quarterly revenue loss of airports by region 2020

Source and methodology information

Source(s) ACI
Conducted by ACI
Survey period 2020

Region(s) Worldwide

Age group n.a.

Special characteristics n.a.

Published by ACI

Number of respondents

Publication date December 2020

Original source Economic impact assessment of COVID-19 on the airport business, page

10

n.a.

Website URL visit the website

Notes: n.a.

Description

In 2020, European airports estimate to have a 40.8 billion U.S. dollars loss in revenue due to the coronavirus outbreak. For further information about the coronavirus (COVID-19) pandemic, please visit our dedicated Fact and Figures page.

Year-on-year change in passenger traffic in Europe from January 2020 to June 2021

Coronavirus: passenger traffic change in Europe 2020

Source and methodology information

Source(s) Eurocontrol
Conducted by Eurocontrol

Survey period January to December 2020

Region(s) Europe

Number of respondents *n.a.*

Age group n.a.

Special characteristics n.a.

Published by Eurocontrol

Publication date January 2021

Original source COVID-19 Impact on European Air Traffic, page 3

Website URL visit the website

Notes: Scenario A includes a partial improvement during the second quarter of

2021, while scenario B includes no improvement during the second

quarter of 2021.

Description

As of January 28, 2021, due to the coronavirus outbreak, passenger traffic at European airports decreased by 60 percent in December 2020 compared to the same month in 2019. For further information about the coronavirus (COVID-19) pandemic, please visit our dedicated Fact and Figures page.

Once the pandemic has subsided, how long will you wait, if at all, to return to your usual travel plans?

Willingness of travelers to fly in the aftermath of the coronavirus pandemic 2020

Source and methodology information

Source(s) IATA
Conducted by IATA

Survey period February to August 2020

Region(s) Worldwide

Number of respondents 4,700

Age group n.a.

Special characteristics air travelers who traveled since July 2019.

Published by IATA

Publication date September 2020

Original source IATA: Passenger insights in the times of a pandemic. Issue 3, August

2020, page 5

Website URL <u>visit the website</u>

Notes: Age of respondents and type of survey was not stated by the source.

Description

Through surveys carried out between February and August 2020, the potential state of the passenger aviation industry in the aftermath of the coronavirus (COVID-19) was tried to be assessed. During the August 2020 survey, around one third of survey respondents revealed that they would wait a month or two given that COVID-19 will no longer be a threat to their health.

Will you travel more, the same, or less than you had planned for leisure over the next 18 months in the aftermath of the COVID-19?

Expected flight preferences of people in the aftermath of the coronavirus 2020

Source and methodology information

Source(s) Oliver Wyman
Conducted by Oliver Wyman

Survey period April 24 to May 10, 2020

Region(s) Worldwide

Number of respondents nearly 4,600

Age group *n.a.*

Special characteristics air travelers, from normal to frequent fliers.

Published by Oliver Wyman

Publication date June 2020

Original source Glimpses of recovery: Traveler sentiment survey. Edition 1, page 5

Website URL <u>visit the website</u>

Notes: Age of respondent and type of the survey were not stated by the source.

Description

In a 2020 survey, over one third of surveyed people stated that they intend to make no change in their air travel plans if coronavirus will no longer pose a threat to their health or travel destinations. During that survey, roughly 18 percent of people revealed that they wish to make more travel than planned.

Main factors influencing air travel decisions in the aftermath of the coronavirus in 2020

Factors impacting flight purchase preferences of travelers post-coronavirus 2020

Source and methodology information

Source(s) Oliver Wyman

Conducted by Oliver Wyman

Survey period April 24 to May 10, 2020

Region(s) Worldwide

Number of respondents nearly 4,600

Age group *n.a.*

Special characteristics air travelers, from normal to frequent fliers.

Published by Oliver Wyman

Publication date June 2020

Original source Glimpses of recovery: Traveler sentiment survey. Edition 1, page 12

Website URL <u>visit the website</u>

Notes: Age of respondent and type of the survey were not stated by the source.

Each respondent could pick three answer choices.

Description

In a 2020 survey, over two-thirds of surveyed air travelers stated that price will be the main factor affecting flight purchase decisions in the aftermath of the coronavirus (COVID-19). Stated aircraft cleaning policies was the second most influential determinant for air travelers to make a decision to buy a travel ticket.

Plan of air travelers to fly in the next six months given the coronavirus pandemic 2020, by region

Impact of COVID-19 on passengers' willingness to fly by region 2020

Source and methodology information

Source(s) OAG

Conducted by

Survey period July to August 2020

Region(s) Worldwide

Number of respondents 4,004

Age group 18 years and older

Special characteristics air travelers

Published by OAG

Publication date October 2020

Original source oag.com

Website URL visit the website

Notes: Access date taken as the release date.

OAG

Description

During a 2020 survey, over 70 percent of respondents from the North American region stated that they wish to use air travel for international travels in the next six months. On the other hand, roughly 55 percent of surveyed people from the Asia-Pacific region expressed their willingness to fly internationally in the upcoming six months.

How concerned are you that you will catch coronavirus while traveling?

Concern of air passengers to contract COVID-19 while traveling 2020

Source and methodology information

Source(s) OAG

Conducted by OAG

Survey period July to August 2020

Region(s) Worldwide

Number of respondents 4,004

Age group 18 years and older

Special characteristics air travelers

Published by OAG

Publication date October 2020

Original source Global Traveler Sentiment Survey: COVID-19 recovery

Website URL visit the website

Notes: Respondents could express the strength of their concern by indicating

between one and ten, one being not concerned and ten very concerned.

Access date was taken as the release date.

Description

During a 2020 survey, over one-fifth of respondents stated that they are not concerned to contract coronavirus (COVID-19) while traveling on a plane. In that same survey, around 15 percent surveyed people expressed very high concern regarding coronavirus during a flight.

Concern of passengers to contract coronavirus worldwide in 2020, by type and region

Catching COVID-19 worry during a shared transportation by type 2020

Source and methodology information

Source(s) OAG
Conducted by OAG

Survey period July to August 2020

Region(s) Worldwide

Number of respondents 4,004

Age group 18 years and older

Special characteristics air travelers

Published by OAG

Publication date October 2020

Original source oag.com

Website URL visit the website

Notes: Type of survey was not stated by the source. Access date taken as the

release date.

Description

During a 2020 survey, air travelers across the world expressed high worry to contract coronavirus (COVID-19) while being on the plane. Compared to other regions,45 percent of passengers in Europe stated high concern to catch COVID-19 while flying.