



Sustainability in 2021

FACT SHEET





Dear Readers,

We are publishing this sustainability fact sheet at a time when the purpose of our business is more relevant than ever: the Lufthansa Group connects people, cultures and economies in a sustainable way. In doing so, we contribute actively to international understanding and peace. This purpose has never been as important and relevant as it is now.

Responsible conduct has been and will continue to be the foundation of our commercial activities. We have been closely guided by the ten principles of the UN Global Compact since back in 2002 and have also documented our part in contributing to the United Nations' Sustainable Development Goals since 2015.

When making these efforts, we are able to rely on the outstanding expertise, above-average skill set and unique spirit of our team. As a service provider, our employees are our biggest asset. This is why we are all the more pleased to have kept the promise we made at the start of the pandemic and retained more than 105,000 secure jobs at Lufthansa Group companies over the long term.

Despite the pandemic's particularly difficult impacts on global aviation, our employees have continued to get involved for

people who are socially disadvantaged and financially worse off. Thanks to their manifold commitment, there were over 40,000 people who benefited from the support of help alliance, our aid organisation, in 2021. The initiatives for this societal engagement stem in large part from our employees who take on this work for the needy in their free time.

In the last two years of the pandemic, we have continued to follow our path to more sustainability and less carbon emissions in spite of the major financial burdens. For instance, we continued the most extensive fleet transformation in our history and even accelerated it by ordering additional fuel-efficient aircraft.

Our airlines were Europe's largest customers for sustainable fuel in 2021. We are actively committed to developing production methods that allow this fuel to be made on a large scale. This is because we firmly believe that technology and infrastructure are the most important and most effective tools at our disposal for climate-friendly aviation. With this commitment we also demonstrate our role as an innovation leader and established the Lufthansa CleanTech Hub last year. It is a center of expertise for sustainable technologies and solutions that is currently evaluating more than 90 projects and initiatives such as AeroSHARK,

a surface film for commercial aircraft that is inspired by the skin of sharks and reduces drag, which lowers the fuel consumption for each flight.

We are continuously expanding our environmental management so that we can achieve our ambitious climate targets, which see the Lufthansa Group being carbon-neutral by 2050. We are aware of the responsibility that we hold and are seeking to guide our industry on the journey to a more sustainable future.

We are delighted that you are interested in our commitment and wish you insightful reading.

Carsten Spohr
Chief Executive Officer
Deutsche Lufthansa AG

At a glance

PERSONNEL DATA		2021	2020	Change
Annual average number of employees		107,643	125,207	-14%
Number of employees (as at 31 Dec)		105,290	110,065	-4.3%
of these, in Germany		60,517	64,058	-5.5%
of these, outside of Germany		44,773	46,007	-2.7%
Staff costs	€ million	6,328	6,436	-1.7%
Revenue/employee	€	159,660	108,532	+47.1%
Staff costs/revenue	percent	37.6	47.4	-9.8PP
Average age	years	43.2	42.4	+0.8years
Part-time ratio ¹	percent	32.3	34.0	-1.7PP
Part-time ratio, men	percent	16.9	18.2	-1.3PP
Part-time ratio, women	percent	51.3	53.0	-1.7PP
Share of women in management positions (worldwide)	percent	18.7	17.2	+1.5PP
Share of women in management positions (Germany)	percent	20.0	19.4	+0.6PP

TRAFFIC DATA		Fact sheet ^{2,3}	Change vs. 2020	Annual Report ^{6,7}	Change vs. 2020
Flights ⁴		456,169	+21.0%	460,029	+17.7%
Passengers carried ⁵	thousand	46,126	+35.1%	46,949	+29.1%
Seat kilometers offered, SKO	million	144,873	+33.1%	145,139	+32.2%
Freight tonne kilometers offered, FTKO	million	9,942	+12.1%	11,867	+12.0%
Passenger kilometers transported, PKT ⁵	million	89,530	+32.4%	89,397	+28.7%
Freight tonne kilometers transported (including third-party performance), FTKT	million	6,673	+14.0%	8,477	+14.7%

¹ Scope = Group consolidation without exceptions. ² The following companies are included in the 2021 reporting year: Lufthansa (including Lufthansa CityLine, Eurowings Discover and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings (including Germanwings), Brussels Airlines and Lufthansa Cargo. Other flights are excluded, as are services from third parties as the Group's influence over their performance is limited

(see fuel consumption table and Third-Party Share table on page 8). ³ Types of flights considered: all scheduled and chartered flights (excluding ground services). ⁴ Segments (operational perspective); annual report: route (customer perspective). A route can contain several segments, for example stopovers. ⁵ Based on all passengers on board. ⁶ Companies included as per footnote 2, but also including services provided by third

parties that contribute to the Group's earnings. ⁷ Previous year's figures adjusted analogously to the 2020 Annual Report. ⁸ Actual fuel consumption/carbon dioxide emissions from flight operations, in tonnes, based on all flight events under the relevant operating flight number. This includes consumption/carbon dioxide emissions from gate to gate, i.e. including taxiing, holding patterns and flight detours.

ENVIRONMENTAL DATA ^{2,3,8}		2021	2020	Change
Resource consumption				
Fuel consumption	tonnes	4,324,746	3,507,461	+23.3%
Fuel consumption, specific, all types of transport	g/tkm	276	280	-1.6%
Fuel consumption, specific, passenger transportation	l/100pkm	4.05	4.18	-3.1%
Fuel consumption, specific, freight transportation	g/tkm	216	214	+0.9%
Emissions				
Carbon dioxide emissions	tonnes	13,622,950	11,048,504	+23.3%
Carbon dioxide emissions, specific, all types of transport	g/tkm	869	880	-1.2%
Carbon dioxide emissions, specific, passenger transportation	kg/100pkm	10.16	10.52	-3.4%
Nitrogen oxide emissions	tonnes	65,001	54,873	+18.5%
Nitrogen oxide emissions, specific, passenger transportation	g/100pkm	46.5	51.6	-9.9%
Carbon monoxide emissions	tonnes	11,031	8,342	+32.2%
Carbon monoxide emissions, specific, passenger transportation	g/100pkm	8.8	8.9	-0.9%
Unburned hydrocarbons	tonnes	1,006.6	805.4	+25%
Unburned hydrocarbons, specific, passenger transportation	g/100pkm	0.80	0.83	-3.3%

The Lufthansa Group values transparent and comprehensive sustainability reporting

Company

MATERIAL ASPECTS OF SUSTAINABILITY AT THE LUFTHANSA GROUP

- Customer satisfaction
- Financial stability and resilience
- Business ethics and compliance
- Sustainable supply chains

- Emissions with impacts on the climate
- Energy and fuel efficiency
- Local pollution (incl. noise)
- Waste management

- Employer attractiveness
- Transformation capability
- Health and safety at work
- Diversity and equal opportunities
- Societal engagement¹

Acting as a sustainable and responsible business is a core component of the Lufthansa Group's corporate strategy. The Lufthansa Group believes that it is its duty to add value for customers, employees and investors and fulfil its responsibility towards the environment, people and society.

It is important for the Lufthansa Group to report on its sustainability-related activities in a transparent and comprehensive way. The Lufthansa Group regularly identifies the aspects of sustainability that are material for this reporting by performing a **materiality analysis**. This analysis incorporates the expectations and interests of the Group's stakeholders. In addition to publishing its **Sustainability Fact Sheet**, the Lufthansa Group also reports on its commitment to sustainability extensively in the **non-financial declaration** in its Annual Report. This declaration is based on the **GRI Standards 2016**, which are internationally accepted reporting standards, and for the first time includes a statement regarding the applicability of the EU Taxonomy Regulation in the 2021 reporting year. The Lufthansa Group has been a signatory to the Task Force on Climate-Related Finance Disclosures (**TCFD**) since 2020 and reports accordingly.

In addition, the Lufthansa Group reports in accordance with the specifications of the Sustainable Accounting Standards Board (**SASB-Standard**).

All reports are published at lufthansagroup.com/en/responsibility.

This website also provides a detailed presentation of the Group's carbon footprint based on a **CDP score** and an annual **Communication on Progress** regarding the Group's sustainable corporate governance in line with the ten principles of the **UN Global Compact**.

External rating agencies have again given the Lufthansa Group's sustainability-related activities an above-average score. The Lufthansa Group has its commitment to sustainability assessed regularly by EcoVadis, an external sustainability assessment platform, on a voluntary basis.

LUFTHANSA GROUP STAKEHOLDERS

 Customers Consumers	 Investors Shareholders Analysts Ratings agencies	 Governments Legislatures Politics State authorities	 Local communities General public Social networks
 Non-governmental organisations (NGOs) Interest groups Associations	 Academia Research and education	 Employees Employee representatives	 Suppliers Contract counterparties

¹ Voluntary materiality by the Lufthansa Group.

SUSTAINABILITY RATINGS

As at: 31 Dec. 2021

 MSCI ESG RATINGS A	 CDP DISCLOSURE INSIGHT ACTION B
 ISS ESG C+	 vigeo eiris 44 Score on 100
 SUSTAINALYTICS 27,5 Medium Risk	 SILVER 2021 ecovadis Sustainability Rating

Values and guidelines

The Lufthansa Group is committed to the **ten principles of the UN Global Compact** for sustainable and responsible corporate governance. Furthermore, it supports the **2030 Agenda for Sustainable Development** that was agreed on by the member states of the United Nations in 2015 and its 17 Sustainable Development Goals (SDGs) as its key components. To contribute

to the achievement of these goals, the Lufthansa Group focuses on the SDGs where it can reduce its negative impact and increase its positive effect due to its business model. These SDGs include:

SUSTAINABLE DEVELOPMENT GOALS (SDG) AT THE LUFTHANSA GROUP

	SDG 3: Good Health and Well-Being		SDG 10: Reduced Inequalities
	SDG 4: Quality Education		SDG 12: Responsible Consumption and Production
	SDG 7: Affordable and Clean Energy		SDG 13: Climate Action
	SDG 8: Decent Work and Economic Growth		SDG 16: Peace and Justice
	SDG 9: Industry, Innovation and Infrastructure		SDG 17: Partnerships for the Goals

Code of Conduct

The Lufthansa Group has a **Code of Conduct** that is mandatory for all of its governing bodies, management and employees. It documents the Group's values, principles and conduct standards. It provides a framework for acting with integrity in accordance with internationally accepted values and standards. The key principles of the Code of Conduct include compliance with the rules of fair competition, fighting corruption and bribery, respect for human rights and compliance with labour and social standards.

Building on this document, the Lufthansa Group also has a **Supplier Code of Conduct**, which specifically lays out the Group's position: it expects its business partners and suppliers to abide by the principles outlined in the code as a key aspect of their business relationship. The principles laid down in the Supplier Code of Conduct not only act as the basis for responsible conduct and fair competition, but are also intended to help identify legal and reputational risks at an early stage and avoid them.

The ten principles of the UN Global Compact

1. Businesses should support and respect the protection of internationally proclaimed human rights.
2. Businesses should make sure that they are not complicit in human rights abuses.
3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.
4. Businesses should uphold the elimination of all forms of forced and compulsory labour.
5. Businesses should uphold the effective abolition of child labour.
6. Businesses should uphold the elimination of discrimination in respect of employment and occupation.
7. Businesses should support a precautionary approach to environmental challenges.
8. Businesses should undertake initiatives to promote greater environmental responsibility.
9. Businesses should encourage the development and diffusion of environmentally friendly technologies.
10. Businesses should work against corruption in all its forms, including extortion and bribery.

Source: UN Global Compact

Strategy

Strategic alignment of the Lufthansa Group

The Lufthansa Group positions itself among the largest airlines in the world and assumes the role as the leading European airline group. In this role, the Lufthansa Group aims to continue to play a part in actively shaping the global airline market. It strives to follow the mission statement: the Lufthansa Group connects people, cultures and economies in a sustainable way. In doing so, it aspires to set standards in terms of sustainability and customer-friendliness. It uses the potential of innovation

and digitalisation to develop customer-focused products and increase efficiency. Corporate responsibility and identity are put into practice locally and supported by overarching functional processes that enable synergies and economies of scale. A strict focus on costs, operational stability and reliability in all areas are firmly established in the DNA of the Lufthansa Group. The safety of flight operations is and will always be the top priority.

VISION STATEMENT OF LUFTHANSA GROUP



A stronger focus on sustainability and corporate responsibility

Responsibility is the basis for commercial activity in the Group. The Lufthansa Group aspires to lead the airline industry with high standards in this area too. It therefore builds continuously on its environmental commitment, is dedicated to many social issues and treats its employees responsibly and fairly.



456,169 flights¹



>300 destinations



46 mn passengers²



713 aircraft



5 hubs



105,290 employees as at 31 Dec. 2021



302 companies (fully consolidated)

¹ Segments (operational perspective). A route can contain several segments, for example stopovers. ² Based on all passengers on board.

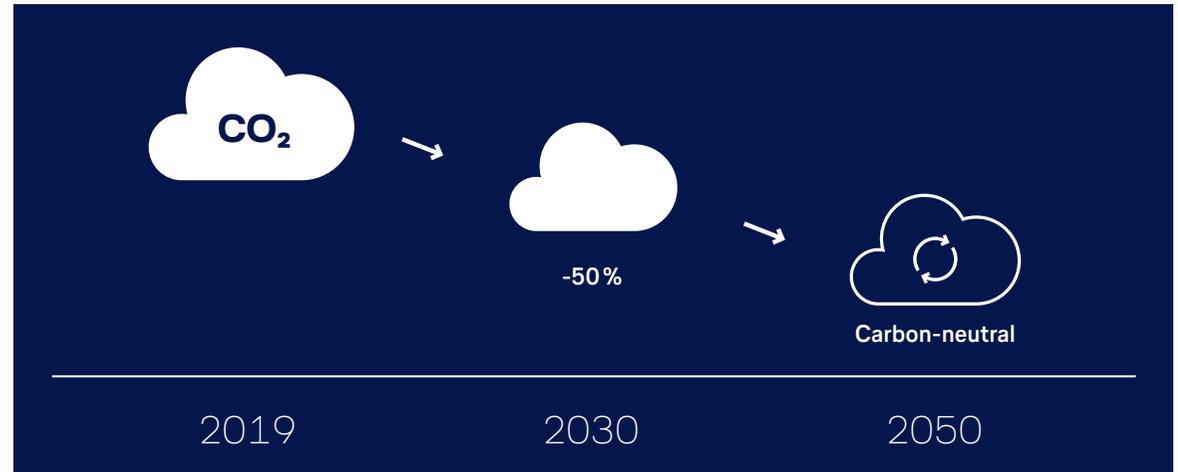
Climate targets

The Lufthansa Group's ambitious climate protection targets

The Lufthansa Group has set ambitious climate protection targets. It is striving to lower its net carbon emissions to half of 2019 levels by 2030 and is seeking to be carbon-neutral by 2050.

The Group also aims to switch to carbon-neutral mobility on the ground in its home markets by 2030.

Lufthansa Group joined the Science Based Targets initiative in 2021 to align its carbon reduction pathway with the targets of the Paris Climate Agreement based on scientific calculations.



THE LUFTHANSA GROUP'S KEY LEVERS FOR ACHIEVING CLIMATE TARGETS



Fleet modernisation

Flying more modern and more efficient aircraft is the most effective instrument for reducing carbon emissions this decade.



Efficient flight operation

Intelligent route planning, modern approach procedures and the latest technology are instruments that are used every day to reduce carbon emissions.



Carbon offsetting

High-quality, certified carbon offset projects that promote climate protection across the world, complemented by CORSIA, the international carbon offsetting instrument for carbon-neutral growth in aviation.



Sustainable fuel

Increasing the use of sustainable fuel is critical for a climate-friendly future.



Intermodal transport for reaching hubs

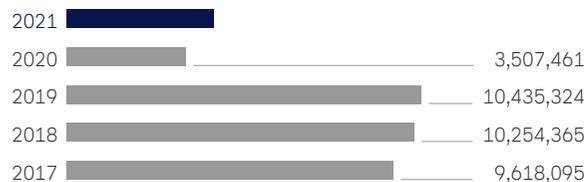
Expanding and integrating flight-, train- and bus services enables a lower number of short-haul flights and alternative ways for reaching hubs.

Absolute fuel consumption

FUEL CONSUMPTION^{1,2}

in tonnes

4,324,746



The passenger airlines within the Lufthansa Group saw a significant rise in demand, especially in summer, due to the gradual ease of travel restrictions. However, towards the end of the year, the infection numbers in the Group's home markets started rising again and had a negative effect on demand.

Due to the overall more positive demand in 2021 as a whole, coupled with the increase in flight operations, a greater amount of fuel was consumed compared to 2020. Accordingly, the number of flights operated rose by 21% and total volume transported by 25%.

FUEL CONSUMPTION¹ IN 2021

in tonnes

	Passengers	Freight	Total	Share
Scheduled flights²				
Lufthansa	1,609,002	1,044,992	2,653,994	58.5 %
Swiss	494,044	284,175	778,220	17.2 %
Austrian Airlines	257,674	53,981	311,655	6.9 %
Eurowings	303,884	1,413	305,297	6.7 %
Brussels Airlines	225,472	50,108	275,580	6.1 %
			4,324,746	95.4 %
Other flights ⁴			14,975	0.3 %
Reg. + other flights			4,339,721	95.7 %
Third parties ^{5,6}	21,774	171,669	193,443	4.3 %
Total flights			4,533,165	100.0 %

FUEL DUMPS² IN 2021

	2021	Change vs. 2020
Total events	5	-5
For medical reasons	2	0
technical reasons	2	-6
other reasons	1	1
Amount³	152 t	-60.4 %

THIRD-PARTY SHARE^{5,6} IN 2021

Flights	2.2 %
Passengers	1.2 %
Tonne kilometers transported, TKT (tkm)	7.9 %
Fuel consumption (tonnes)	4.3 %
Carbon dioxide emissions (tonnes)	4.3 %

¹ Actual fuel consumption/carbon dioxide emissions from flight operations, in tonnes, based on all flight events under the relevant operating flight number. This includes consumption from gate to gate, i.e. including taxiing, holding patterns and flight detours.

² The following companies are included in the 2021 reporting year: Lufthansa (including Lufthansa CityLine, Eurowings Discover and Air Dolomiti), SWISS (including Edelweiss Air,

Austrian Airlines, Eurowings (including Germanwings), Brussels Airlines and Lufthansa Cargo. Other flights (see footnote 4) are excluded, as are services from third parties as the Group's influence over their performance is limited (see the Third-Party Share table).

³ Based partly on projections. ⁴ Ferry flights, special flights, test flights, training flights,

aborted flights. ⁵ Airlines that are outside the scope of this fact sheet but provide services for Lufthansa, e.g. in the event of capacity bottlenecks. ⁶ Excluding Road Feeder Service and chartered in-partial capacities of Lufthansa Cargo, as information on fuel consumption and emissions is not available for these services.



 **Fleet modernisation**



~2.5 liters

Kerosene per passenger per 100 km¹

Fleet renewal will remain the most important lever for reducing carbon emissions this decade

The Lufthansa Group invests continuously in modern and particularly fuel-efficient aircraft and engine technologies. It also continuously reviews measures for modifying the technology of existing aircraft and, if applicable, implements its findings in conjunction with partners in research and industry.

Accelerated fleet renewal

The Lufthansa Group signed leases for four modern and fuel-efficient Airbus A350-900 aircraft in 2021. It also purchased five additional Boeing 787-9 long-haul aeroplanes. These nine jets are planned to join the Lufthansa fleet in 2022 and will contribute to improved sustainability thanks to their reduced fuel consumption and lower carbon emissions. These emissions are up to 30% less than with the predecessor models.

¹ Applies to the Airbus A350-900. ² Excluding contracted leases.

FLEET ORDERS LUFTHANSA GROUP

	Fixed orders ²	Deliveries	Additional options
Long-haul fleet			
Airbus A350	28	2023 to 2029	
Boeing 787	25	2022 to 2026	20
Boeing 777	20	2023 to 2027	24
Boeing 777F	1	2024	
Short-haul fleet			
Airbus A220			30
Airbus A320	66	2022 to 2026	
Airbus A321	35	2022 to 2027	
Total aircraft	175	2022 to 2029	74



Further highlights in 2021

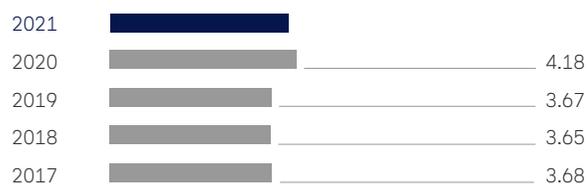
- **Ten new, more fuel-efficient aircraft** put into operation – including Airbus A220-300, A320neo and A321neo and Boeing 777F, all featuring modern engines.
- The **A320neo** family aircraft, for instance, are the most modern and environmentally friendly aircraft in the short-haul and medium-haul segments. They are also much quieter than their predecessors.
- In return, a total of **55 older aircraft left the Group fleet.**

Specific fuel consumption



SPECIFIC FUEL CONSUMPTION PASSENGER TRANSPORTATION^{1,2} IN THE LUFTHANSA GROUP

in liters/100 passenger kilometers (l/100 pkm) **4.05**



The year-on-year decline in the specific consumption by the Group's fleet is mainly the result of a changed mix of routes and an associated increase in the average route length. Longer routes result in better specific consumption since the energy-intensive share of take-off and landing in the total flight distance is reduced.

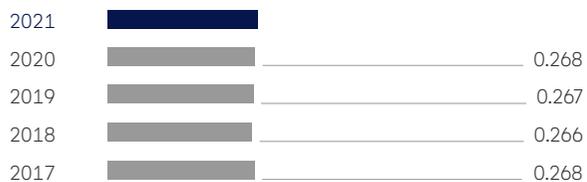
SPECIFIC FUEL CONSUMPTION PASSENGER TRANSPORTATION IN COMPARISON^{1,2}

in liters/100 pkm

	2021	2020	Change in %
Group fleet	4.05	4.18	-3.1%
Lufthansa	3.97	4.21	-5.7%
Swiss	4.14	3.70	11.8%
Austrian Airlines	4.57	4.73	-3.5%
Eurowings	4.10	4.97	-17.4%
Brussels Airlines	3.87	3.86	0.3%

SPECIFIC FUEL CONSUMPTION FREIGHT TRANSPORTATION^{1,2,3}

in liters/tonne kilometers (l/tkm) **0.270**



Lufthansa CityLine, Eurowings Discover and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings (including Germanwings), Brussels Airlines and Lufthansa Cargo. Other flights are excluded, as are services from third parties as the Group's influ-



¹ Actual fuel consumption from flight operations, in tonnes, based on all flight events under the relevant operating flight number. This includes consumption/carbon dioxide emissions from gate to gate, i.e. including taxiing, holding patterns and flight detours.

² The following companies are included in the 2021 reporting year: Lufthansa (including

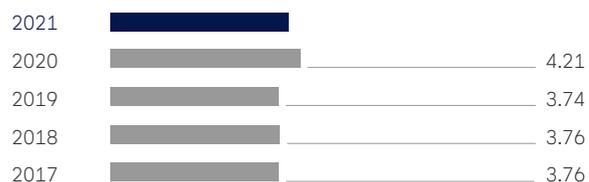
ence over their performance is limited (see fuel consumption table and Third-Party Share table on page 8). ³ Based on freight tonne kilometers (FTKT), transported in both cargo and passenger aircraft.

Specific fuel consumption passenger airlines



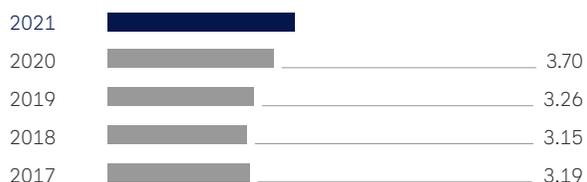
SPECIFIC FUEL CONSUMPTION PASSENGER TRANSPORTATION^{1,2} AT LUFTHANSA GERMAN AIRLINES

in liters/100 passenger kilometers (l/100 pkm) **3.97**



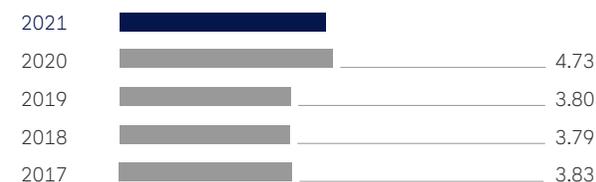
SPECIFIC FUEL CONSUMPTION PASSENGER TRANSPORTATION^{1,2} AT SWISS

in liters/100 passenger kilometers (l/100 pkm) **4.14**



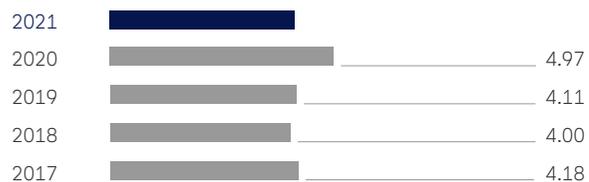
SPECIFIC FUEL CONSUMPTION PASSENGER TRANSPORTATION^{1,2} AT AUSTRIAN AIRLINES

in liters/100 passenger kilometers (l/100 pkm) **4.57**



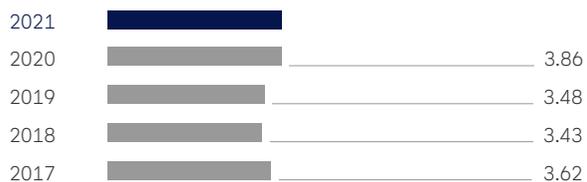
SPECIFIC FUEL CONSUMPTION PASSENGER TRANSPORTATION^{1,2} AT EUROWINGS

in liters/100 passenger kilometers (l/100 pkm) **4.10**



SPECIFIC FUEL CONSUMPTION PASSENGER TRANSPORTATION^{1,2} AT BRUSSELS AIRLINES

in liters/100 passenger kilometers (l/100 pkm) **3.87**

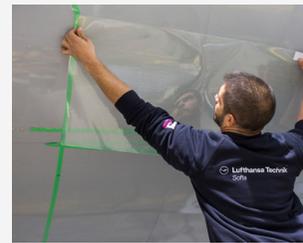
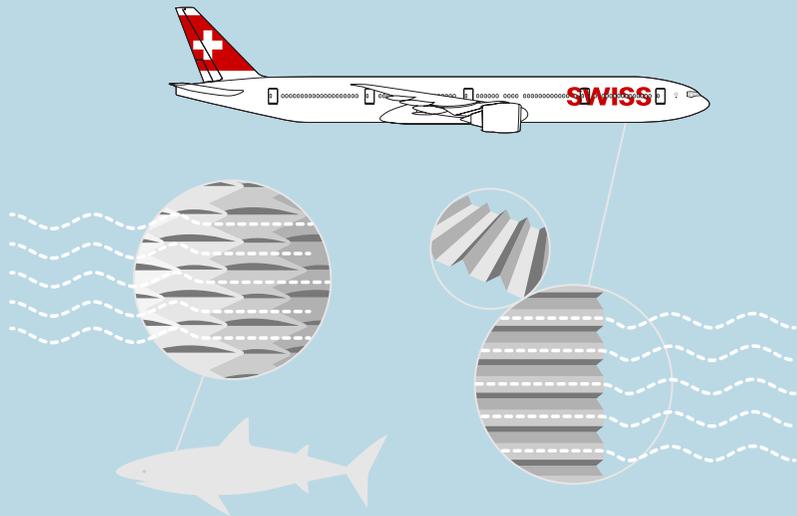


¹ Actual fuel consumption from flight operations, in tonnes, based on all flight events under the relevant operating flight number. This includes consumption/carbon dioxide emissions from gate to gate, i.e. including taxiing, holding patterns and flight detours.

² The following companies are included in the 2021 reporting year: Lufthansa (including Lufthansa CityLine, Eurowings Discover and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings (including Germanwings), Brussels Airlines and Lufthansa

Cargo. Other flights are excluded, as are services from third parties as the Group's influence over their performance is limited (see fuel consumption table and Third-Party Share table on page 8).

 **AeroSHARK**



The film is being applied to the hull and nacelles first. Lufthansa Technik's engineers are already working on the ability to cover the wings with AeroSHARK film soon so that even more fuel can be saved and carbon emissions reduced.

 ~26,800

tonnes of CO₂ prevented each year¹

 ~8,500

tonnes of kerosene avoided each year¹

 100 %

In 2022, SWISS and Lufthansa Cargo will be the first airlines in the world to have all their Boeing 777s equipped

 110

equals Boeing 777F flights from Frankfurt to Shanghai

AeroSHARK – inspired by nature

A concept to reduce carbon emissions that uses technology and sharks as inspiration: Lufthansa Technik and BASF are developing this innovative surface technology and making it marketable. A small structure with a major contribution for less carbon emissions.

The AeroSHARK film is invisible to the human eye and yet still saves striking amounts of fuel. Thanks to its roughly 50-micrometer-large structure, it reduces flow-induced drag and therefore fuel consumption by up to 1.1%.

¹ After retrofitting.

Decoupling of fuel and transport

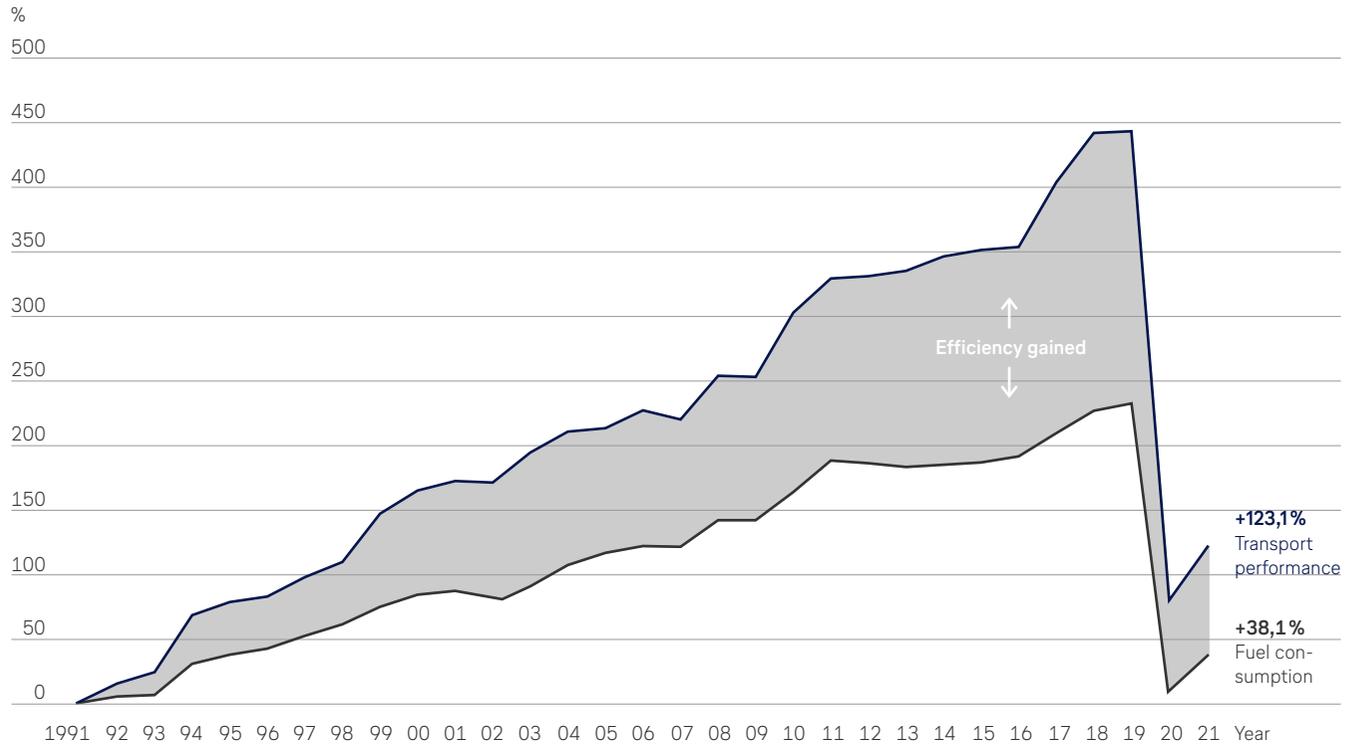
Increasing the efficiency between transport performance and fuel consumption

Thanks to countless measures, the Lufthansa Group has already been successful in reducing its fuel consumption relative to its rising transport performance for many years.

The results of these efforts can be seen in the graph illustrating the decoupling effect⁴. For instance, transport performance increased by up to 440% between 1991 and 2019, the year before the crisis, though fuel consumption over the same period only rose by about 230%. This is equivalent to a specific fuel consumption of 446 g/tkm (grams of fuel per transported tonne kilometer) in 1991 and 276 g/tkm in 2019 and an efficiency increase of 38%. The Lufthansa Group was able to reach its pre-crisis level of 276 g/tkm in 2021. The continuous fleet modernisation and use of more fuel-efficient aircraft in particular contributed to the efficiency increase. The modern Airbus A350-900 and Boeing 787-9 aeroplanes are current examples of this as they consume up to 30% less fuel than their predecessor models. Accordingly, nine aircraft of these types in total will enter service at the Lufthansa Group in 2022. The year 2021 also 55 older aircraft left the Group fleet. Up to 180 new and particularly fuel-efficient aircraft will be added by 2030.

Environment

DECOUPLING OF TRANSPORT PERFORMANCE AND FUEL CONSUMPTION^{1,2,3,4} SINCE 1991



Further highlights in 2021

There were **22 additional Group-wide projects** for reducing fuel consumption that were pursued in the areas of performance and procedures, weight reduction, flight route optimisation and technical developments.

-9.6

1,000 tonnes of kerosene equates to 1,000 tonnes of CO₂

This equates to roughly 113 Airbus A350-900 flights from Munich to New York and return.

-30.4

¹ For the 2020 reporting year, the following applies: all routes and charter flights operated by Lufthansa (including Lufthansa CityLine, Eurowings Discover and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings (including Germanwings), Brussels

Airlines and Lufthansa Cargo. Services provided by third parties are excluded, as their performance can only be influenced to a limited degree (see the Third-Party Share table on page 8). ² Transport measured in TKT. ³ 2020 transport performance corrected due

to system adjustments. ⁴ Illustration of developments in transport performance and fuel consumption – based on the initial values for 1991 – in two graphs. The grey area in between represents the efficiency gained.



Sustainable aviation fuel (SAF)



The future

In the future, sustainable aviation fuel will be made as well by using renewable energies and the power of the sun:

Power to liquid (PtL): the Lufthansa Group is the first customer for the world's first PtL jet fuel made on an industrial scale. It is manufactured based on power from renewable energies, water and carbon dioxide – from the atmosphere, for example.

Sun to liquid (StL): it will also be possible to make sustainable aviation fuel from sunlight in the future. The StL process involves sunlight being concentrated using mirrors and combined with water and carbon dioxide from the surrounding air to manufacture carbon-neutral jet fuel. **SWISS will be the first customer for this first solar fuel worldwide.**

Sustainable aviation fuel – the climate-friendly fuel

Sustainable fuel is the key to the carbon-neutral flights of the future, especially on medium- and long-haul flights. The Lufthansa Group is engaged in more than ten SAF developing cooperations, which specialized mostly on power-to-liquid and solar technologies, without disregarding SAF of biogenic origins.

With these multitude of cooperations the Lufthansa Group has agreed on purchase commitments, so called „off-taking agreements“.



Why will it take so long until sustainable aviation fuel is used on a large scale?

Although the technologies for producing sustainable aviation fuel (SAF) industrially have been tested and are well known, the volume of SAF available on the market is not yet sufficient. What's more, today's SAF costs about three to five times as much as kerosene from fossil sources. Future types of SAF such as power-to-liquid (PtL) and sun-to-liquid (StL) fuel are predicted to see a market ramp-up over the coming years. However, this will be strongly dependent on the industrial and political frame conditions. Because renewable energies are used to manufacture PtL fuel, the generation of the large volumes of energy required is currently in competition with the renewable energy that is in demand in other sectors.

How much renewable energy will be needed to meet the fuel demands of the Lufthansa Group with SAF from renewable sources?

Here is a comparison: the Lufthansa Group's demand for kerosene in 2019 was just over 10 million tonnes. Producing the equivalent amount of fuel from renewable energies would require approximately 310 TWh of power. This volume of electricity corresponds to roughly 42% of Germany's current demand for electricity.



-80%

carbon emissions compared to fossil fuel thanks to sustainable fuel of biogenic origins – including production and transport



Today

The sustainable aviation fuel that is **already used by the Lufthansa Group today** is produced using materials of biogenic origins, such as used cooking oils and fats. It does not conflict with the farming of food products as only waste from tree plantations and agriculture is used. In 2021 the Lufthansa Group was the largest customer in Europe.



USD 250 mn

is the amount the Lufthansa Group will invest in procuring SAF over the next three years

Emissions

Absolute emissions¹

EMISSIONS² IN 2021

in tonnes

	Passengers	PY	Freight ²	PY	Total	PY
CO ₂	9,100,317	+27.9%	4,522,633	+15.0%	13,622,950	+23.3%
NO _x	41,667	+19.2%	23,334	+17.1%	65,001	+18.5%
CO	7,885	+31.1%	3,146	+35.3%	11,031	+32.2%
UHCs	719	+27.8%	287	+18.4%	1,007	+25.0%

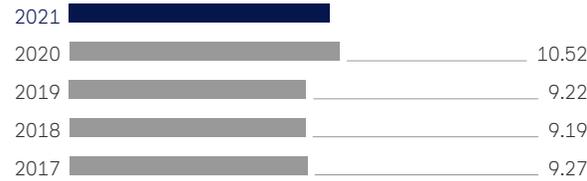
Specific CO₂ emissions¹

PASSENGER TRANSPORTATION IN 2021

CO₂ emissions

in kilograms/100 passenger kilometers (kg/100 pkm)

10.16

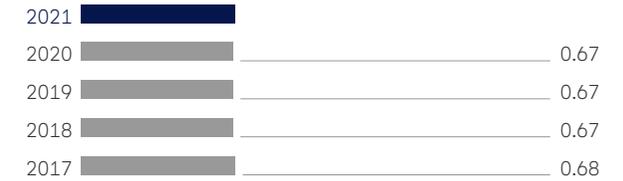


FREIGHT TRANSPORTATION³ IN 2021

CO₂ emissions

in kilograms/freight tonne kilometers (kg/tkm)

0.68



Why are there no battery/hydrogen aeroplanes?

To make aviation fully carbon-neutral over the long term, the use of alternative sources of power could make an immense contribution. The main power systems in this context are electric ones that use power from renewable sources such as the sun or wind or power from fuel cells. Smaller aircraft can already be run entirely on electric engines these days. However, further research is needed until alternative power systems are at such a stage of technological maturity and financial viability that they can be used on a large scale in new aeroplanes. For example, a battery's energy density would first need to be eight to ten times more than is currently possible using today's

technology. This means it will take presumably many years until large passenger aeroplanes can run solely on electric batteries.

Hydrogen can also enable carbon-neutral aviation. It has three times the energy density of conventional kerosene, but requires a multitude of volume. On top of that, hydrogen only becomes liquid at -253 °C and can only be used in a compressed form under high pressure in special tanks. Aeroplane and engine concepts will need to be reconceptualised, the necessary infrastructure will have to be built at airports, and there will need to be enough green hydrogen – generated using renewable energies – at

competitive prices. The development and market-ready production of alternative battery-electric and hydrogen-based motor concepts for short-haul aeroplanes will likely take at least another 15 years, while the development for larger and, importantly, long-haul aeroplanes is currently unforeseeable. The Lufthansa Group is following these developments diligently and analysing their future viability and relevance on an ongoing basis.

Source: German Aviation Association Klimaschutzportal [Climate Protection Portal]

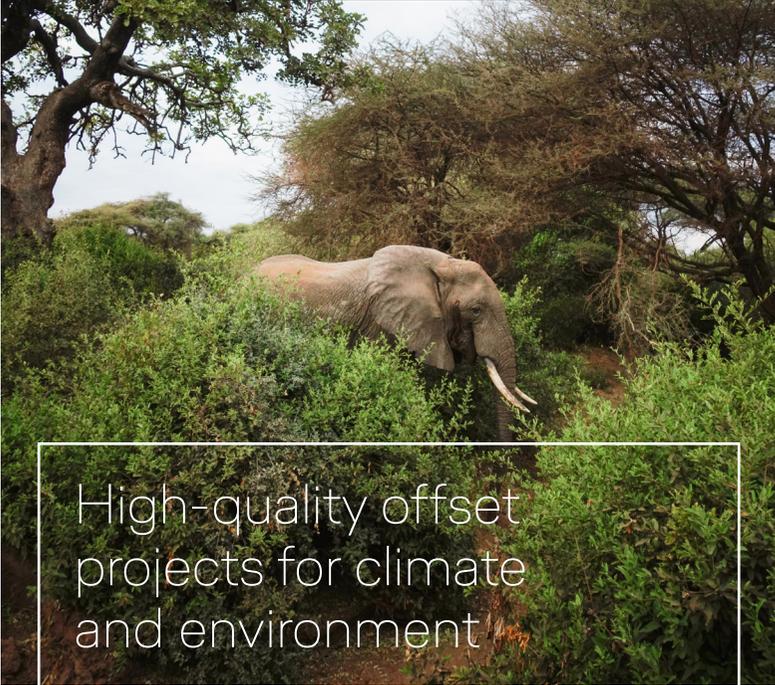
¹ For the 2020 reporting year, the following applies: all routes and charter flights operated by Lufthansa (including Lufthansa CityLine, Eurowings Discover and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings (including Germanwings), Brussels

Airlines and Lufthansa Cargo. Services provided by third parties are excluded, as their performance can only be influenced to a limited degree (see fuel consumption table and Third-Party Share table on page 8). ² Absolute emissions from flight operations, in tonnes

(all routes and charter flights). This includes emissions from gate to gate, i.e. including taxiing, holding patterns and flight detours. ³ Based on freight tonne kilometers (FTKT), transported in both cargo and passenger aircraft.



Carbon offsetting



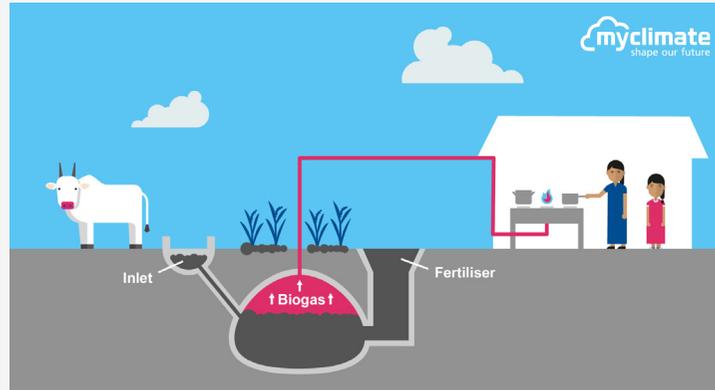
High-quality offset projects for climate and environment

Example 1

➤ **Offsetting carbon emissions** and protecting Tanzanian forests for indigenous populations, wild animals and the climate. **Just €10 protects roughly 50 m² of forest.**

 Thank you!

The Lufthansa Group's customers offset over **85,000 tonnes of carbon emissions with climate protection projects between 2019 and 2021.**



Source: ➤ myclimate

Example 2

➤ **Building biogas plants** for families in India stops them from having to cut down and burn firewood and use chemical fertilisers in that country. **One plant stops 6.5 t of carbon emissions per year.**

Flying carbon-neutral while benefitting the climate, biodiversity and habitats

Since 2007, the Lufthansa Group has offered its customers the option of flying carbon-neutral by contributing to high-quality carbon offset projects and/or now also by procuring sustainable fuel. They can choose their desired type of offset easily and directly at the time of booking. For carbon offsetting projects, the Lufthansa Group mainly relies on its long-established partnership with ➤ myclimate. myclimate is a non-profit organisation that aims not only for climate protection, but also to support social, environmental and economic development in the regions of their respective projects. The long-term effectiveness of carbon offset projects and, by extension, climate protection can only be ensured when the local population is included. myclimate transparently publishes the contributions that each of its projects make to achieving the ➤ **United Nations' SDGs**. The carbon offset projects selected by the Lufthansa Group are also subject to the highest quality standards and, for example, are certified by the provider ➤ „**The Gold Standard**“. This non-commercial certification organisation puts exceptional demands on integrative project design with a demonstrable offset of greenhouse gases, and is also recommended by the German Environment Agency.



Further highlights in 2021

- **100% offsetting** of carbon emissions from **work-related** flights taken by Lufthansa Group employees around the world – **over 25,000 tonnes of CO₂** were offset through the climate protection organisation **myclimate**
- **„Sustainable Choices“** gives business clients of the Lufthansa Cargo the option to offset carbon dioxide from their flights and individual shipments through climate projects or in combination with sustainable fuel – as well like private customers can offset via Lufthansa Group's compensation platform ➤ **„Compensaid“** already.

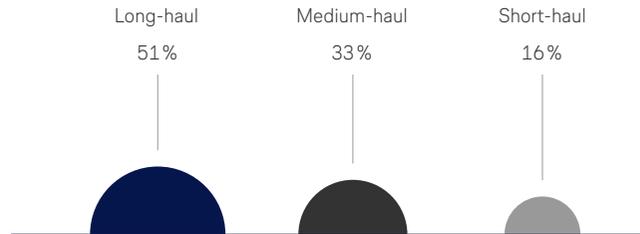
Specific fuel consumption and CO₂ emissions

SPECIFIC FUEL CONSUMPTION AND SPECIFIC CO₂ EMISSIONS OF THE LUFTHANSA GROUP¹ IN 2021

- Values for specific fuel consumption in liters per 100 passenger kilometers (l/100 pkm)
- ☁ Values for specific CO₂ emissions in kilograms per 100 passenger kilometers (kg/100 pkm)

	Total	Long-haul	Medium-haul	Short-haul
•	4.05	3.75	3.80	6.67
☁	10.16	9.41	9.57	16.78

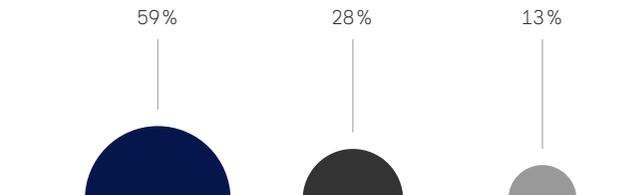
SHARE OF FUEL CONSUMPTION BY TRAFFIC AREAS¹ IN 2021



Environment

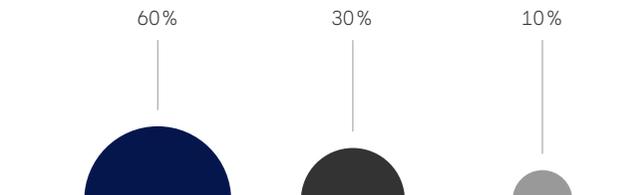
LUFTHANSA GERMAN AIRLINES

	Total	Long-haul	Medium-haul	Short-haul
•	3.97	3.71	3.68	6.57
☁	9.96	9.29	9.26	16.55



SWISS

	Total	Long-haul	Medium-haul	Short-haul
•	4.14	4.19	3.75	5.36
☁	10.38	10.51	9.43	13.46



¹ Definition of haul length: long-haul over 3,000 km; medium-haul 800 to 3,000 km; short-haul under 800 km.

Specific fuel consumption and CO₂ emissions

SPECIFIC FUEL CONSUMPTION AND SPECIFIC CO₂ EMISSIONS¹ IN 2021

- Values for specific fuel consumption in liters per 100 passenger kilometers (l/100 pkm)
- Values for specific CO₂ emissions in kilograms per 100 passenger kilometers (kg/100 pkm)



	Total	Long-haul	Medium-haul	Short-haul
•	4.57	3.75	4.45	6.40
☁	11.41	9.35	11.13	16.04

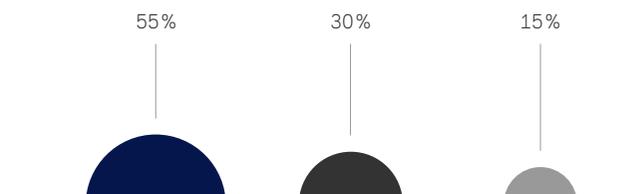
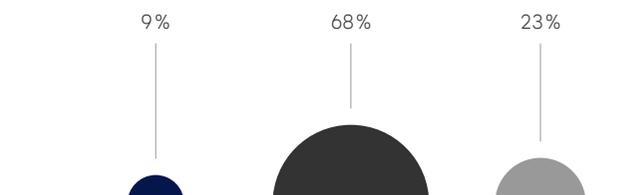
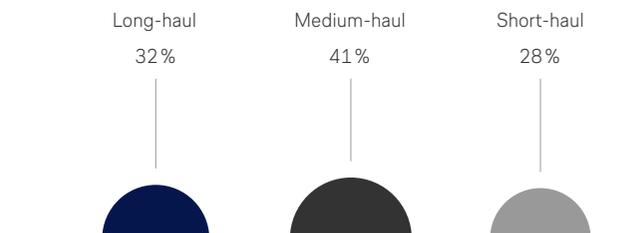


	Total	Long-haul	Medium-haul	Short-haul
•	4.10	3.15	3.67	7.84
☁	10.36	7.95	9.26	19.82



	Total	Long-haul	Medium-haul	Short-haul
•	3.87	3.44	3.84	7.32
☁	9.72	8.63	9.65	18.42

SHARE OF FUEL CONSUMPTION BY TRAFFIC AREAS¹ IN 2021



Smart transport mix

Different modes of transport should be connected in a way that makes optimal use of their respective benefits for transport, the economy and the environment in order to harness the added potential for reducing emissions. In the interest of intermodal connectivity, the Lufthansa Group doesn't only focus on its flights but on building partnerships with national railway companies in Germany, Switzerland and Austria as well as various bus companies.

The project partners believe that roughly 4.3 million passengers could potentially decide to take the train instead of the plane for domestic travel in Germany, which could reduce domestic German flights by an estimated 20 percent. To make this happen, rail travel times will need to be shortened further. Experience shows that considerable numbers of passengers switch to rail if the travel time is not much more than three hours. Domestic routes have been and can be cancelled wherever this mode switch is successful. At places where trains and buses are intended to replace connecting flights at international hub airports, work is also being done to enhance the reliability of the connection and the carriage of any baggage.

Source: German Aviation Association Klimaschutzportal [Climate Protection Portal]

¹ Definition of haul length: long-haul over 3,000 km; medium-haul 800 to 3,000 km; short-haul under 800 km.



Political engagement

European climate protection must not distort competition

In summer 2021, the European Commission presented its Fit for 55 legislative package which included proposed regulations for meeting Europe's climate targets. Of the total of 13 legislative initiatives, three are particularly relevant for aviation: the reform of the emissions trading system (EU-ETS), a rising quota for sustainable aviation fuel blending (ReFuelEU Aviation) and a proposal for implementing a kerosene tax (Energy Taxation Directive).

The Lufthansa Group welcomes the ambitious targets set out within the climate package, however it has also presented tangible proposals for improving the measures in order to avoid the potential disadvantages for European airlines when facing international competitors. In the view of the Lufthansa Group, what is needed is a climate policy that reduces emissions effectively, that prevents carbon emissions being shifted to non-EU countries through carbon leakage and that ensures fair competition internationally. However, the stricter EU emissions trading system and plans quota for sustainable, and therefore more expensive, fuels increase costs in a one-sided way for long-haul flights that connect at EU hubs.



Aviation Alliance Fit for 55

A new alliance of European airlines and airports is calling for revisions to the Fit for 55 package presented by the European Commission in July. The „Aviation Alliance Fit for 55“ currently consists of 19 companies, including airlines within the Lufthansa Group. These partners have developed proposals for how the EU climate protection package could set an example globally and safeguard connectivity and jobs in the EU.

More information at aviationalliance.eu

Environment



Fit for 55 aviation

How to avoid carbon leakage and ensure fair competition.

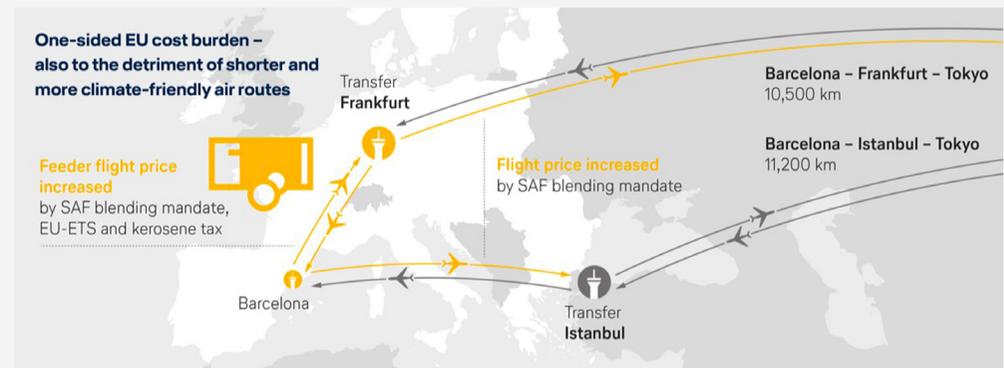
Lufthansa Group joins „Aviation Alliance Fit for 55“

The Aviation Alliance Fit for 55 sees an urgent need for improvement on precisely these matters. This new alliance of hub airports and network carriers, which Lufthansa Group airlines have also joined, fears that implementing the plans in the form presented so far would result in significant competitive disadvantages. Connections via hubs outside of the EU would become cheaper in comparison, with the result that carbon emissions would be shifted there instead of being avoided.

One-sided financial burden for European airlines

Internal analyses show clearly that the gap in prices caused by the Fit for 55 regulations would increase considerably and at Germany's and Europe's expense.

An example: While tickets from Frankfurt Airport would be more than 25 percent more expensive by 2035, the cost increase for Istanbul would be just 4 percent. Consequently, demand for Frankfurt Airport would decrease by about 15 percent whereas Istanbul could expect passenger numbers to grow.

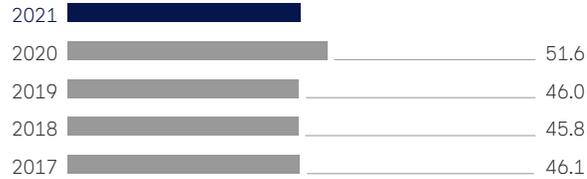


Specific further emissions separated by passenger and freight traffic

NO_x emissions

in grams/100 passenger kilometers (g/100 pkm)

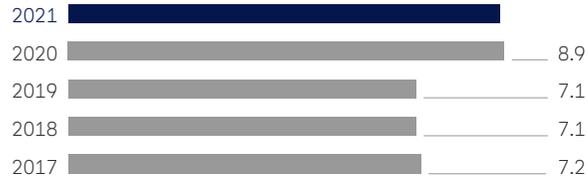
46.5



CO emissions

in grams/100 passenger kilometers (g/100 pkm)

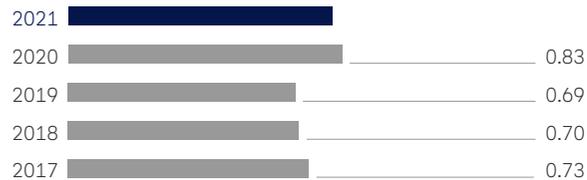
8.8



UHC emissions

in grams/100 passenger kilometers (g/100 pkm)

0.80



How are further emissions created?

Using fossil fuel causes different types of emissions, such as nitrogen oxides, in addition to carbon emissions.

These emissions arise from e.g. the incomplete combustion of kerosene. Factors such as temperature, pressure and load influence the combustion efficiency. Consequently, the combustion processes must be optimised in order to reduce the emissions that are generated.

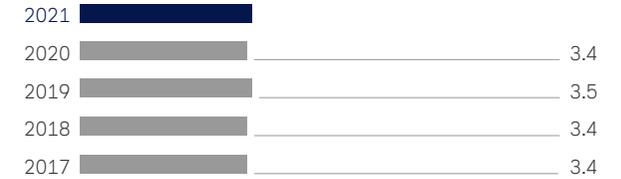
Higher combustion temperatures, for example, allow a more efficient use of fuel – on the other hand – they also produce more emissions, including nitrogen oxides in particular. The combustion chambers in modern engines are able to achieve an improved combustion. Less emissions are released as a result and fuel consumption is reduced at the same time.

The Lufthansa Group invests continuously in more modern and particularly fuel-efficient aircraft and engine technologies. It also has a committed role in research projects that examine the impact and prevention of further emissions.

NO_x emissions

in grams/freight tonne kilometers (g/tkm)

3.5



CO emissions

in grams/freight tonne kilometers (g/tkm)

0.5



UHC emissions

in grams/freight tonne kilometers (g/tkm)

0.04



Carbon footprint

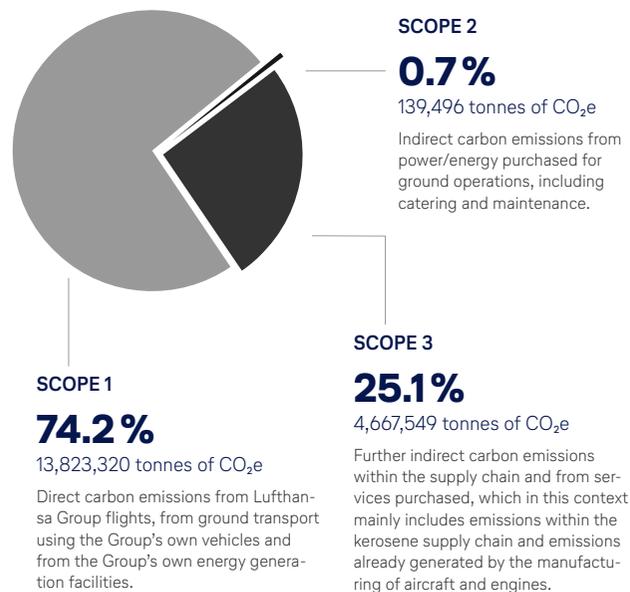
DIRECT AND INDIRECT CO₂ EMISSIONS OF THE LUFTHANSA GROUP IN COMPARISON¹

in tonnes of CO₂e

	2021	2020	2019
Scope 1	13,823,320 74.2%	11,509,756 76.0%	33,349,293 75.6%
Scope 2	139,496 0.7%	135,183 0.9%	199,817 0.4%
Scope 3	4,667,549 25.1%	3,491,821 23.1%	10,588,707 24.0%



DIRECT AND INDIRECT CO₂ EMISSIONS OF THE LUFTHANSA GROUP IN 2021



The Greenhouse Gas Inventory accounts for the entire Greenhouse Gas emissions of Lufthansa Group². Through the use of Sustainable Aviation Fuel (SAF) 35,456 tonnes CO₂ were reduced in the year 2021 outside of this verified inventory (Well-to-Wheel Accounting³).



The special nature of carbon footprints in aviation

The term „carbon footprint“ refers to the sum of all carbon dioxide emissions (measured in CO₂) and greenhouse gas emissions (measured in CO₂ equivalent, CO₂e) that a company, product or service causes directly or indirectly over a defined period of time or across a life cycle.

The Lufthansa Group calculates its carbon emissions based on the categories laid out in the Greenhouse Gas Protocol (GHG Protocol). Accordingly, emissions are divided into three „scopes“ (see the illustration entitled „Direct and indirect CO₂ emissions of the Lufthansa Group“).

While the scope 3 emissions from supply chains in all industries are, on average, three times as much as the total scope 1 and 2 emissions, the reverse is the case in aviation. The emissions from the direct burning (scope 1) of energy sources – in this instance kerosene – makes up about 75% of the total carbon footprint in aviation. Determining its carbon footprint helps the Lufthansa Group identify and evaluate its material environmental impacts with more precision. This helps to develop more targeted options for mitigation.

¹ Scope 1 for the 2021 reporting year, audited with high assurance. Scopes 2 and 3 subjected to a limited-assurance audit (see page 22). ² Group consolidation.

³ Definition (DIN EN 16258) „Well-to-Wheel Accounting“: Assessment of vehicle as well as energy processes.

Calculation method of absolute and specific consumption and emissions

Kerosene, absolute

Kerosene consumption is calculated based on actual flight operations, which means accounting for actual payloads and flight routes from gate to gate. This calculation captures all stages of a flight, from taxiing to detours and holding patterns.

Emissions, absolute

The calculation of absolute emissions from flight operations is based on the actual transport performance and thus on actual payloads as well as the actual absolute kerosene consumed during the reporting year. The transport performance is measured in tonne kilometers. For passengers and their baggage, an average of 100 kilograms is used as the standard, whereas the actual weight is used for freight.

Carbon emissions do not require a specific aeroplane-specific calculation because they are produced proportionally to the amount of kerosene that is burned. The combustion of one tonne of kerosene produces 3.15 tonnes of carbon dioxide.

Specific consumption and emissions

The calculation of specific consumption and emissions puts the absolute values in relation to the transport performance. For example, the key liter figures per 100 passenger kilometers (l/100 pkm) is calculated on the basis of the actual kilometers flown and the actual amount of kerosene consumed.

The underlying distances are based on great-circle distances. For combined flights (freight and passengers transported on the same aeroplane), the fuel consumption is linked with the calculation of passenger- or freight-specific values based on their share of the total payload.

The DIN EN 16258 standard has existed since 2013 to provide a framework for calculating the greenhouse gas emissions for transport processes in a consistent way. The Lufthansa Group applies this framework when it comes to allocating payloads. The Lufthansa Group would welcome a consistent and internationally harmonised and accepted method.

Verification statement Scopes 1–3

verified by
MÜLLER-BBM
CERT GMBH

ISO 14064

Müller-BBM Cert Umweltgutachter GmbH, accredited verification body DAkkS D-VS-18709-01-01 confirms that the greenhouse gas balance according to the GHG Protocol of the

LUFTHANSA GROUP

**Deutschen Lufthansa AG
and affiliates***

audited according to the requirements of ISO 14064-3 and the information in the figure "direct and indirect CO₂ emissions of the Lufthansa Group 2021" on page 21 of the Factsheet Sustainability 2021 was verified with the following uncertainties:

Scope 1 (reasonable assurance, 2% materiality)	13.823.320 t CO _{2eq}
Scope 2** (limited assurance, 5% materiality)	139.496 t CO _{2eq}
Scope 3 (limited assurance, 10% materiality)	4.667.549 t CO _{2eq}

Kerpen, April 27th, 2022

Jäger

Müller-BBM Cert Umweltgutachter GmbH

* Companies in the scope of the CDP Report 2021:
Deutsche Lufthansa AG, Lufthansa Cargo AG, Lufthansa Technik AG, Lufthansa CityLine GmbH, Swiss International Air Lines AG, Edelweiss Air AG, Brussels Airlines SA/NV, Austrian Airlines AG, Air Dolomiti S.p.A, Linee Aeree Regionali Europee, Germanwings GmbH, Eurowings Aviation GmbH, Eurowings Discover GmbH, Eurowings Europe GmbH, LSG Lufthansa Service Holding AG, Lufthansa AirPlus Servicekartens GmbH, Lufthansa Global Business Services GmbH, Lufthansa Seeheim GmbH, Miles & More GmbH, Lufthansa Process Management GmbH, Lufthansa Systems GmbH & Co.KG, Lufthansa Industry Solutions GmbH & Co.KG, Lufthansa Aviation Training GmbH, LZ-Catering GmbH, Lufthansa Global Tale Sales GmbH, EFM-Gesellschaft für Entleeren und Flugzeugschleppen am Flughafen München GmbH

** market based

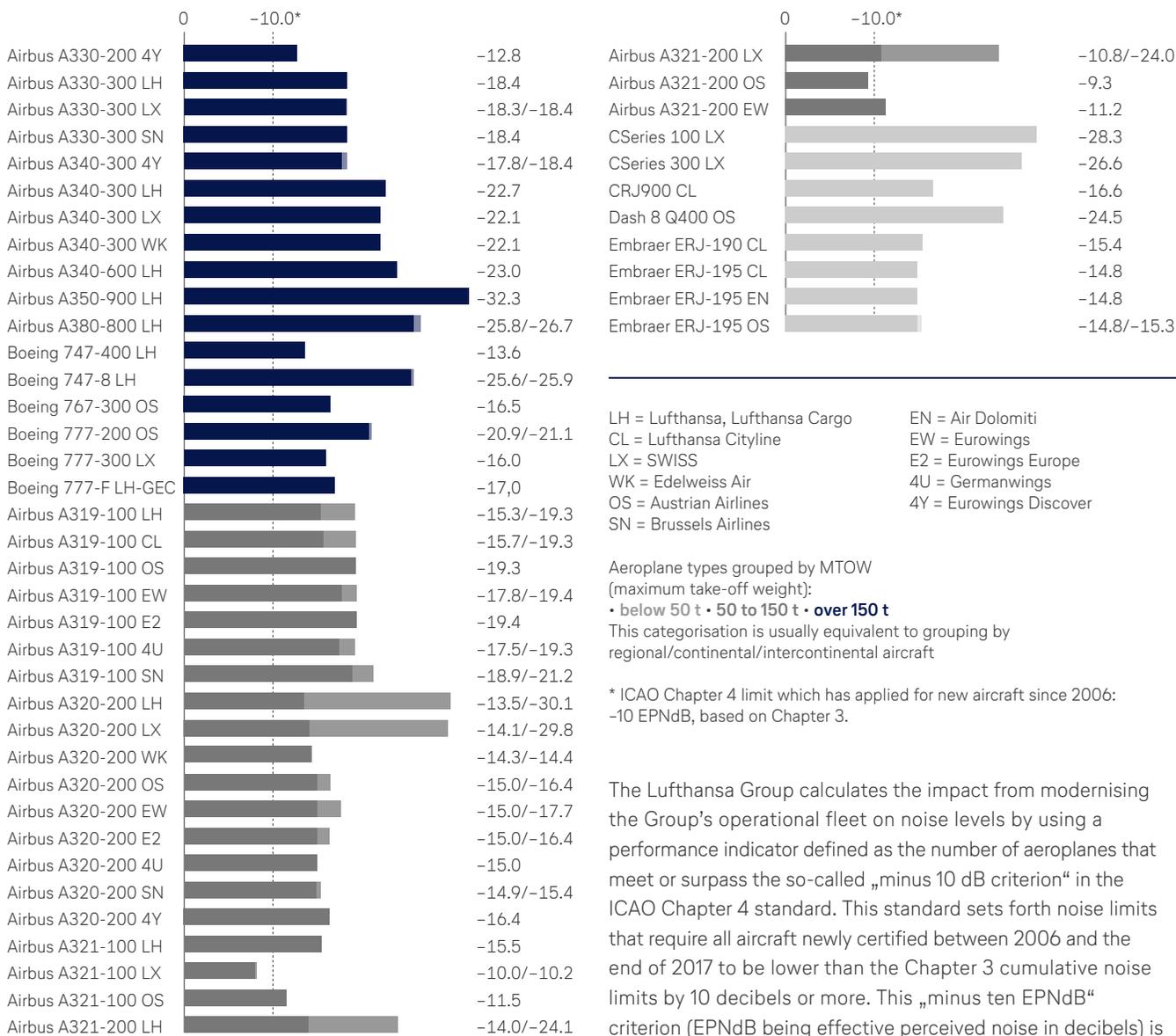
Müller-BBM Cert
Umweltgutachter GmbH
Heinrich-Hertz-Straße 13
50170 Kerpen / Germany
Phone +49 2273 59280-188
Fax +49 2273 59280-11
info@mbbm-cert.com
muellerbbm-cert.de

A MEMBER OF
MBBM
MÜLLER-BBM GROUP

Most stringent noise standards for the Lufthansa Group's fleet

MARGIN BELOW THE NOISE LIMIT OF ICAO CHAPTER 3 AND 4

As at 30 Oct. 2021, in EPNdB



represented by the vertical dashed line in the overview to the left. In 2021, 99.6 percent of aircraft – and therefore almost all of the Group's operational fleet – met this criterion.

The limits depend on the aircraft's maximum take-off weight allowed and the number of engines in an aeroplane. The bar chart displays the sum of the differences between the measurement and the limit at the three reference measurement points (cumulative margin). If necessary, the values are presented based on the reduced maximum take-off weight applicable during flight operation. The analysis methodology incorporates the individual noise certification data of all of the Group's aircraft. This accounts for the different versions of aeroplane models and their engines by year of construction. Accordingly, the overview presents ranges from the lowest to the highest cumulative margin for many fleets.

The analysis also incorporates modifications that have been performed on the aircraft or engines in the meantime, which can result in changed noise data and cumulative margins. Furthermore, additions and disposals within individual fleets lead to changes in the ranges reported.

The data is collected as at the date on which the summer schedule ends. All aircraft held within the individual airlines as at the calculation date are included in the calculation of the performance indicator.

 99.6%

of aircraft in the Group's operational fleet meet the strict minus 10 dB criterion of the ICAO Chapter 4 standard



Reducing plastic and food waste



New food options with more sustainable packaging materials on board Lufthansa German Airlines, SWISS and Austrian Airlines

Bottle to bottle – a closed loop for rPET bottles

In the future, bottles made of recyclable PET (rPET) used on board arriving Lufthansa German Airlines aircraft will be collected at Frankfurt Airport and fully recycled. The bottles will be integrated into a dedicated recycling process to which crews, catering companies, aircraft cleaning staff and Frankfurt Airport will contribute. The PET flakes that are recovered will then be used to create new bottles which can be refilled with beverages. This will make Frankfurt the first airport in Europe and here, Lufthansa German Airlines the first airline to transfer recyclable PET bottles into a sustainable, closed material cycle directly from the plane. Based on the plane movements and loads in 2019, the number of PET bottles that could be collected and put into recycling each year is up to ten million.

¹ Basis: 370 million (annual consumption in 2019) single-use plastic parts consumed on board Lufthansa German Airlines, SWISS and Austrian Airlines.

71%

reduction of single-use plastic parts already achieved¹

100%

of single-use plastic parts on board Lufthansa Group Network Airlines and Eurowings to be fully removed or replaced by sustainable alternatives by 2025¹

The Lufthansa Group Airlines have short-term targets that focus in particular on reducing waste from single-use plastic on board. Lufthansa German Airlines, SWISS and Austrian Airlines identified 370 million single-use plastic parts in 2019. Due to the pandemic, the airlines were unable to achieve their target of fully replacing them with sustainable alternatives or removing them by 2021. As a result, this target has been postponed to 2025.

Why not just switch to reusable items?

Utilising reusable items is a core element of the product concepts at the Lufthansa Group. The potential for switching to reusable items is regularly reviewed when there are product adjustments, taking into consideration the available stowage space on board, weight, in-flight service times and number of items required, and the on-board items are adjusted if necessary.



Further highlights in 2021

- **Reduce:** reducing the **volume of single-use plastic items stocked on board** by changing the food and drink offering to a premium buy-on-board service on intra-European flights operated by Lufthansa German Airlines, SWISS and Austrian Airlines
- **Reuse:** **switching to reusable cutlery and dishes** in SWISS Economy Class
- **Recycle:** **rolling out new single-use plastic cups made of recycled PET** at Lufthansa German Airlines – cups that can be fed into a recycling process in the future
- **Replace:** the Eurowings **on-board magazine is now printed on 100% recycled paper** and the airline's disposable plastic stirrers have been **replaced by wooden stirrers**
- **Reduced volumes of food waste** at Lufthansa German Airlines, SWISS and Austrian Airlines with improved, algorithm-based demand planning and with discounts on the final flights of the day at Eurowings



CleanTech Hub

Lufthansa Group CleanTech Hub – the new center for bundling competences for climate protection technologies

This new center of expertise that the Group has started aims to accelerate the implementation of clean technologies within the Lufthansa Group airlines and foster collaboration within teams and with external partners. The Lufthansa Group CleanTech Hub thus adopts a targeted approach of seeking out technology-driven

ideas and project partners that can contribute to sustainable aviation. Regular events (pitch days) since November 2021 give businesses, start-ups and research organisations an opportunity to present their concepts and ideas. If they are given a positive assessment, the concepts are developed further in conjunction with the Lufthansa Group.

The CleanTech Hub brings together projects and initiatives in five fields

Transport of tomorrow

This field focuses on the future. The emphasis is on trailblazing projects for sustainable aviation and transport that have a time to market finishing in the next few years or that require further research and development work.

Alternative fuel and emissions

This field revolves around initiatives for sustainable aviation fuel, emission reduction and climate research.

Aircraft-related hardware

The projects and research in this field aim to improve all aspects of an aircraft that could have positive impacts on fuel consumption, aerodynamics and noise emissions.

Waste and circular economy

This brings together all projects that help reduce the waste generated on board and avoid plastic.

Digital solutions and processes

This field concentrates on smart software solutions for climate-friendly decision making and planning in flight operations and beyond.

„traceless materials“ – an example of collaboration

The Lufthansa Group is supporting a start-up called „traceless materials“ in scaling up its sustainable plastic alternatives.

Plastic is an affordable, versatile and useful material. Life without it would be unimaginable. However, the general awareness of its problems is growing and so too is the demand for alternative solutions.

„traceless materials“ is a German green-business start-up whose mission it is to develop an innovative, sustainable technology for manufacturing biodegradable plastic alternatives made from agricultural waste products. These materials can be used to make packaging that can decompose in natural composting conditions without leaving any remains. As a result, the materials can circulate in their biological cycle continuously and „traceless“ waste is turned into a nutrient over and over again.

One of the goals for the collaboration between „traceless materials“ and the Lufthansa Group is to make on-board food packaging more environmentally friendly.

>40

project applications since foundation



Customer satisfaction

49

NPS of Network Airlines

The Net Promoter Score (NPS) is based on customers' willingness to recommend the company and is the leading indicator of customer satisfaction among Network Airlines and Eurowings. Eurowings reached an NPS of 47 in 2021, higher than its target of 45. Network Airlines achieved a score beneath its target of 60. The reason for this were the strong increase in flight operations and the corresponding passenger numbers, particularly in the second quarter of 2021 and later. Combined together with mandatory pandemic-related measures such as extensive document checks, both causes had negative impacts on processes and punctuality and thus also on customer satisfaction.

47

NPS of Eurowings

Customer satisfaction

81.3 %

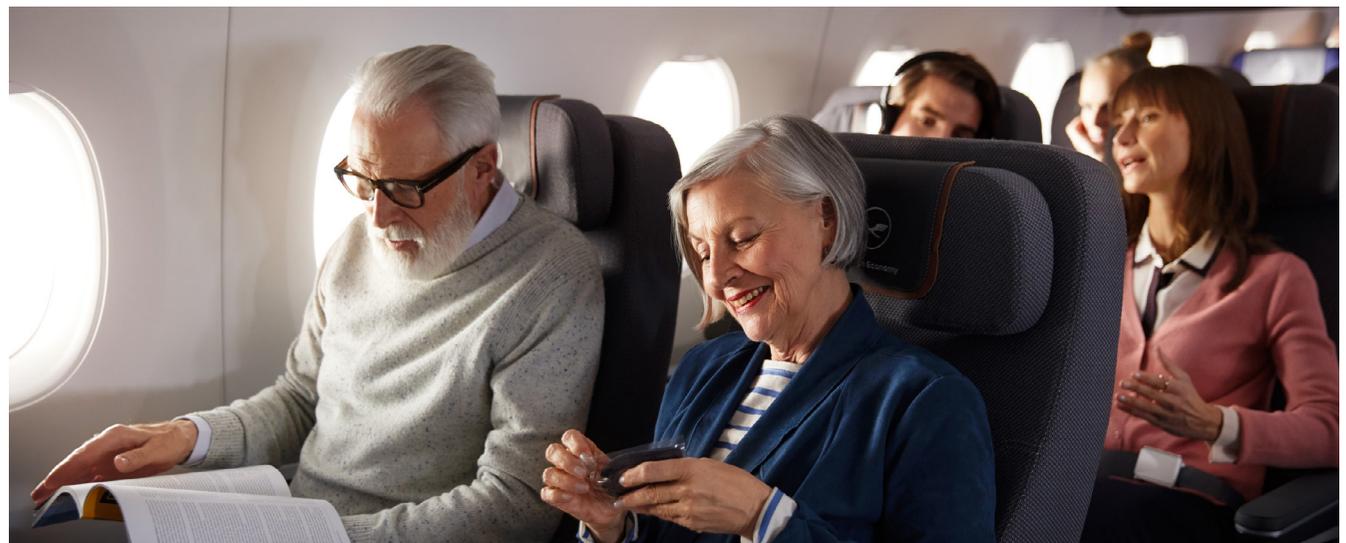
Departure punctuality

The average departure punctuality achieved throughout the year was 7.3 percentage points lower than previous year. However, pandemic-related adjustments of ground processes, strongly fluctuating load numbers and staff shortages among the ground handling services of system partners had negative impacts on departure punctuality.



Further highlights in 2021

- **Quick and convenient processing at security:** implementing the Health & Entry Support Center for digital document checks, online check-in and travel information such as entry requirements, and the Drive-Through Test Center directly at Frankfurt Airport
- **Unlimited rebookings:** extensive flexibility thanks to modified fare structure
- **Notifications sent via instant messaging:** European Aviation Network (EAN) broadband internet technology was piloted on a SWISS Airbus A320
- In the event of delays and cancellations, any compensation entitlements can be automatically assessed independently of any customer call center and, if applicable, payment can be requested – enabled by the „Self-Compensation Tool“ developed by Eurowings

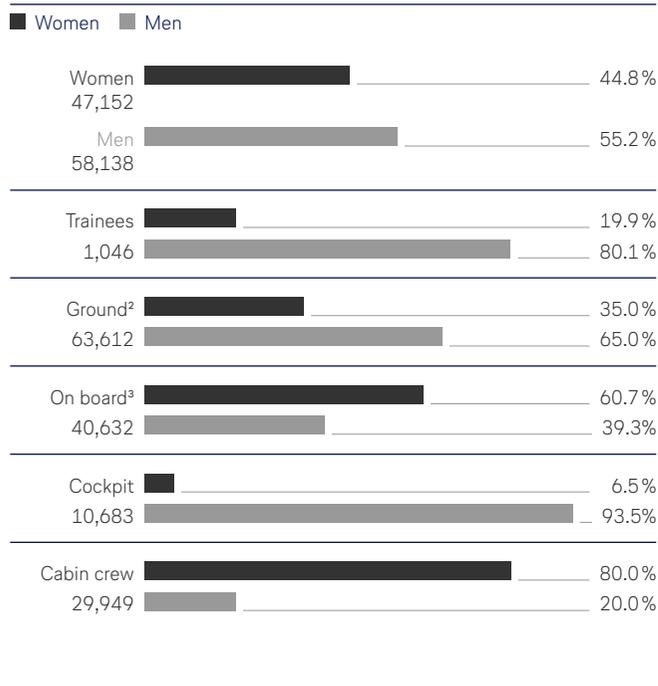


Employee numbers

The employees of the Lufthansa Group are a key factor in the Group's success thanks to their expertise and diverse wealth of talent. They represent the premium claim of the Lufthansa Group airlines during interactions with passengers and shape the customer experience. They also ensure reliable and productive operations and efficient administrative processes. Accordingly, the Lufthansa Group attaches great importance to guiding and supporting them through this current period of transformation and restructuring.

NUMBER OF EMPLOYEES BY PROFESSIONAL GROUP AND GENDER¹

Lufthansa Group, employees as at December 31, 2021

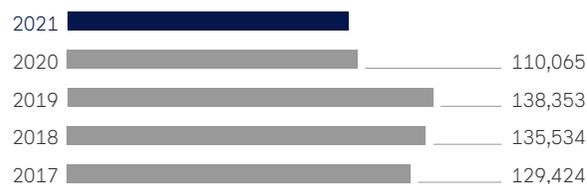


¹ Group consolidation. ² Excluding trainees. ³ Comprised of cockpit and cabin crews.
⁴ Close to pensionable age: employees born in 1958 or earlier; far from pensionable age: employees born in 1965 or later; partial-retirement offers were made for employees born between 1960 and 1964. ⁵ Pilots who were eligible to apply for a transitional pension

EMPLOYEES IN TOTAL¹

Lufthansa Group, employees as at December 31

105,290



Voluntary redundancies

Structural changes in demand and the market environment brought about by the Corona pandemic made far-reaching changes necessary within the Lufthansa Group. As part of its transformation, the Lufthansa Group is adjusting not only its fleet but also its headcount to the changed market environment. It was able to achieve major progress in these efforts during the 2021 financial year. The number of employees declined in 2021, mainly as a result of the broad acceptance of the voluntary redundancy packages that were offered to employees in all job categories at Deutsche Lufthansa AG and to employees of Lufthansa Technik AG and other Lufthansa Group companies in

VOLUNTARY REDUNDANCIES AT LUFTHANSA TECHNIK⁹

Lufthansa Technik AG, employees leaving/left in 2021 and 2022

■ Close to pension⁷ ■ Far from pension⁷

Total: | 1,376 people
 ■ 65% | 894 people
 ■ 35% | 462 people



in 2021 (entitlement exists in the year before reaching the age limit of 55). ⁶ Close to entitlements threshold (over 55 years of age as at 31 Jan. 2022); far from entitlements threshold (under 55 as at 31 Jan. 2022). ⁷ Close to pensionable age: employees born

DISTRIBUTION OF EMPLOYEES¹

Lufthansa Group, employees as at December 31

	2021	2020	Change
Group employees	105,290	110,065	-4.3%
of these, at Network Airlines	53,295	57,363	-7.1%
of these, at Eurowings	3,563	3,088	15.4%
of these, in Logistics	4,162	4,373	-4.8%
of these, in MRO	20,569	22,745	-9.6%
of these, in Catering	15,626	13,227	18.1%
of these, at other companies and Group functions ⁴	8,075	9,269	-12.9%

Germany. The purpose of these redundancies was to reduce the existing surplus of employees in a socially responsible way in order to avoid forced layoffs in Germany. In total, there were roughly 4,500 employees who opted to leave the Group with a voluntary redundancy package in 2021. Of this number, about 800 have already terminated employment at the Lufthansa Group in the course of the 2021 financial year.

„now!“ VOLUNTARY REDUNDANCY PROGRAMME⁸

Deutsche Lufthansa AG, employees leaving/left in 2021 and 2022

■ Close to pension/entitlements ■ Far from pension/entitlements



Ground⁴
 ■ 58% | 1,048
 ■ 42% | 759



Cockpit⁵
 ■ 100% | 385
 ■ 0% | 0



Cabin Crew⁶
 ■ 64% | 894
 ■ 36% | 482

between 1956 and 1964 (1965 for heavily disabled staff); far from pensionable age: employees born in 1965 or later. ⁸ Deutsche Lufthansa AG only. ⁹ Lufthansa Technik AG only.

Employer attractiveness

A balanced relationship between professional and private lives, a comprehensive approach to equal opportunities and diversity in all its dimensions and intensive support for talented individuals are crucial fields of action that are intended to help achieve the Lufthansa Group's desire for fair and peer-like interaction with its employees and preserve its position as an attractive employer.

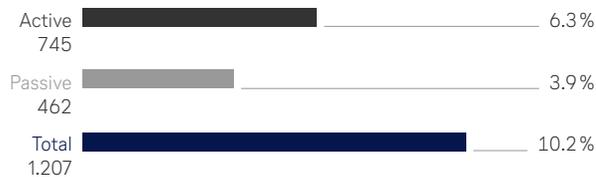
Engagement Index is down, dedication is up

Within the Lufthansa Group, the Engagement Index is calculated based on the voluntary annual employee survey: „involve me!“. It provides information about aspects such as employer appeal and measures the employees' feeling of connection with the company, their commitment to the company and their willingness to recommend the company. The result is presented on a scale from 1 (best score) to 5 (lowest score). The main drivers of the decline were the redundancies, restructuring and necessary cost-cutting measures. The employees' commitment to the company, however, increased compared to 2020.

PARTIAL RETIREMENT, ACTIVE/PASSIVE²

Deutsche Lufthansa AG, employees as at December 31, 2021

Total ground staff at Deutsche Lufthansa AG: 11,876



 83%

of staff in Germany covered by collective agreements¹

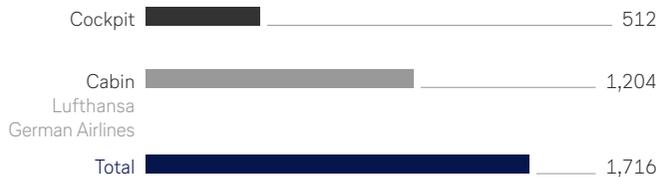
ENGAGEMENT INDEX⁴

Lufthansa Group, in percent 2021



TRANSITIONAL PENSION FOR FLIGHT CREW³

Deutsche Lufthansa AG and Lufthansa Cargo AG, employees as at December 31, 2021



Partial retirement for ground staff

Based on Germany's Act on Partial Retirement (AltTZG), partial retirement is an agreement with an employee no younger than 55 years of age to reduce working hours to half of their previous weekly working hours whilst simultaneously making this form of part-time work attractive by topping up the employee's salary with payments from the employer. The working hours are usually divided into a stage with full working hours (**actively working stage**) and a subsequent period where the employee is relieved of all of their work duties (**leave/passive-income stage**). This model is called the block model, with the employer topping up the reduced salary and paying additional pension contributions. The top-up payments made by Deutsche Lufthansa AG are normally 25% of the reduced salary.

Transitional pension for flight crew

The transitional pension is a retirement benefit provided for under the collective agreements. It consists mostly of a funded pension benefit from Deutsche Lufthansa AG and can be complemented with a pension benefit funded by the employees themselves. The transitional pension is paid for the period between retirement based on the applicable age limit and the earliest possible start date for the statutory pension scheme. Cabin and cockpit employees have the possibility to obtain a transitional pension starting at 55 years of age. Drawing a transitional pension is voluntary and governed by collective agreements. It offers flight crew an option for exiting working life earlier than the age limit mandated by law for Deutsche Lufthansa AG.

¹ The remaining proportion of employees are largely executives and senior-level managers.
² Deutsche Lufthansa AG only. ³ Deutsche Lufthansa AG and Lufthansa Cargo AG.

⁴ Companies participating in the "involve me!" survey represent 86% of all Lufthansa Group employees.

Employer attractiveness

Parental leave, childcare, caregiver leave and time off

Increased flexibility and freedom is provided with programmes such as Lufthansa Family Time, extensive childcare services (including during holidays), parent-child offices, caregiver leave and time off.

To balance work and family better, there are offerings such as different working-hour models. Employees can reduce their weekly working hours and/or distribute them flexible in line with their personal situation. They also have possibilities to apply

for special leave or remote working as well as various options for taking time off, whether it is for caring for or looking after children, family members or partners. They are complemented by accompanying counselling services.

At the Lufthansa Group, managers, employees and co-workers agree on solutions jointly so that they can balance their professional and personal lives better.



Employees

EMPLOYEES ON PARENTAL LEAVE (OUTSIDE GERMANY)¹

Lufthansa Group, employees as at December 31

Women



Men



EMPLOYEES ON PARENTAL LEAVE (GERMANY)²

Lufthansa Group, employees as at December 31

Women



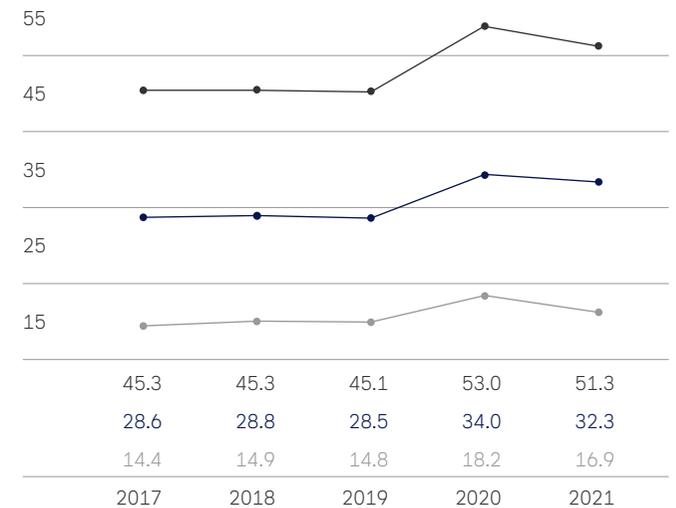
Men



PART-TIME EMPLOYMENT^{1,3,4}

Lufthansa Group, in percent as at December 31

■ Women ■ Total ■ Men



¹ Scope: Group consolidation, excluding Germany, excluding LSG Sky Chefs Spain, S.A.; LSG Sky Chefs Supply Chain Solutions, Inc.; Constance Food Group, Inc.; Sky Chefs, Inc.; Western Aire Chef, Inc.; SCIS Air Security Corporation. ² Group consolidation, Germany. ³ Part-time

with partial retirement (including block model). ⁴ Scope: Group consolidation, excluding LSG Sky Chefs Spain, S.A.; LSG Sky Chefs Supply Chain Solutions, Inc.; Constance Food Group, Inc.; Sky Chefs, Inc.; Western Aire Chef, Inc.; SCIS Air Security Corporation.

Diversity and equal opportunities

Share of women in leadership to be boosted

The Lufthansa Group is committed to embedding gender diversity into its leadership culture continuously. In addition to awareness training for all managers, the Female Leadership Boost project provides a broad portfolio of individual development measures for female talents.

For example, the established GoAhead programme for up-and-coming women in management is being expanded from 16 to roughly 50 participants in 2022. This programme aims to give talented women the best preparation possible for a position in

management. The Lufthansa Group has also rolled out a requirement for the selection in recruitment processes, with a quota for women now set within the recruitment process at various „Leadership Circle“ levels. This requirement is intended to enable more visibility for talented women. The final appointments will continue to be based on the most suitable candidate. To promote work-life balance, all „Leadership Circle“ positions are advertised with an option for part-time hours and „shared leadership“. The latter is a job-share model where two individuals split the hours of a leadership position while sharing the duties. There are currently about 30 such pairs at the Lufthansa Group.

Employees

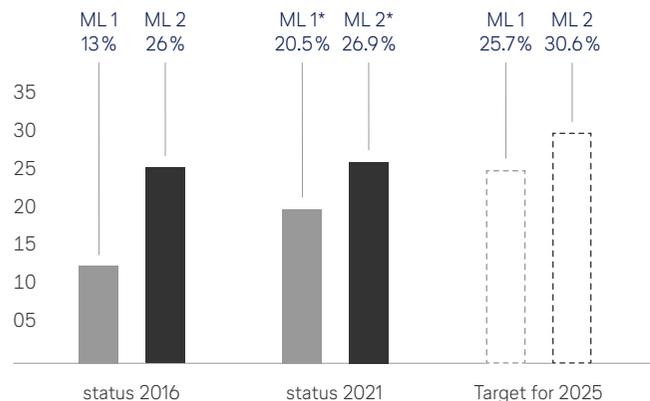
 40%

women on Supervisory Board²

WOMEN AT MANAGEMENT LEVELS³ 1 AND 2

(legally required) Deutsche Lufthansa AG, in percent

*Target for 2021 ML 1: 20%; ML 2: 30%

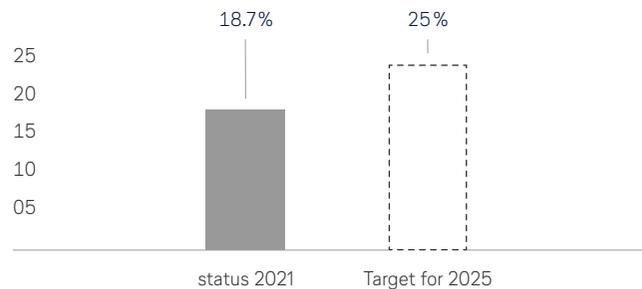


 16.7%

women on Executive Board²

WOMEN IN MANAGEMENT⁵

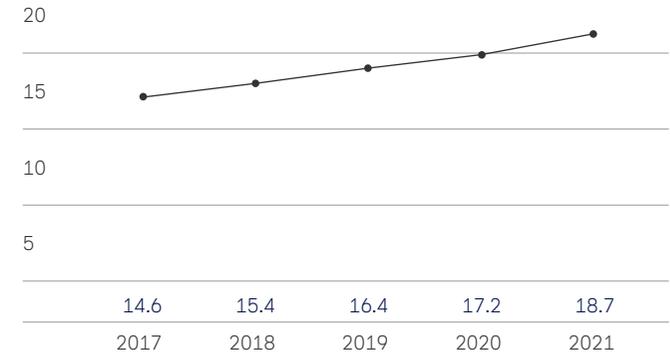
(voluntary) Lufthansa Group, in percent



In addition to the statutory targets for Management Levels 1 and 2 at Deutsche Lufthansa AG, the Lufthansa Group has also set a further, voluntary target. Based on it, the Lufthansa Group is endeavouring to increase the percentage of women among all managers in leading positions.

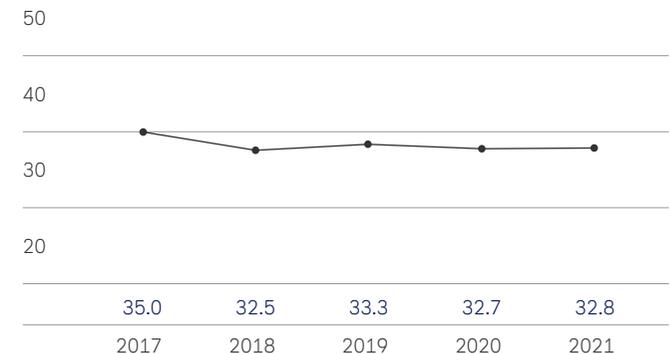
SHARE OF WOMEN IN MANAGEMENT (WORLDWIDE)¹

Lufthansa Group, in percent as at December 31



SHARE OF WOMEN WITH STAFF RESPONSIBILITY (WORLDWIDE)¹

Lufthansa Group, in percent as at December 31



¹ Scope: Group consolidation. ² Deutsche Lufthansa AG. ³ Management Level (ML) refers to the level reporting to the Executive Board. ⁴ Leadership Circle comprises employees in leading position and describes one level within the management levels of the Lufthansa Group. ⁵ Management comprises all employees in leading positions.

Diversity and equal opportunities



Employees

 4.3%

Inclusion³

Finding, keeping and developing talents

Talent management at the Lufthansa Group has a focus on performance and potential and is set up to identify individuals within the company who are high-performing and have potential and to bind them to the company with suitable measures. The Group creates structured networking opportunities, has professional development offerings such as digital learning programmes, analyses potential and organises educational placements. These offers are complemented by appealing opportunities for inclusion, for example, in design thinking challenges or participation in projects where issues relating to the future are tackled. The Lufthansa Group recruits talented graduates in a targeted way

¹ Scope: Group consolidation, excluding LSG Sky Chefs Spain, S.A.; LSG Sky Chefs Supply Chain Solutions, Inc.; Constance Food Group, Inc.; Sky Chefs, Inc.; Western.

 172

different nationalities² within the Lufthansa Group workforce

by collaborating with universities for „dual study programmes“ in engineering, finance and IT, where students learn at the university and at work, as well as by running established international management trainee programmes.

The Lufthansa Group's planned recruitment of almost 500 young adults who will commence an apprenticeship or study programme in 2022 emphasises the importance that the Group attaches to the education and development of up-and-coming talent.

² Group consolidation. ³ Reporting German companies, consolidated plus shares of Lufthansa Group >50%.

AVERAGE AGE¹

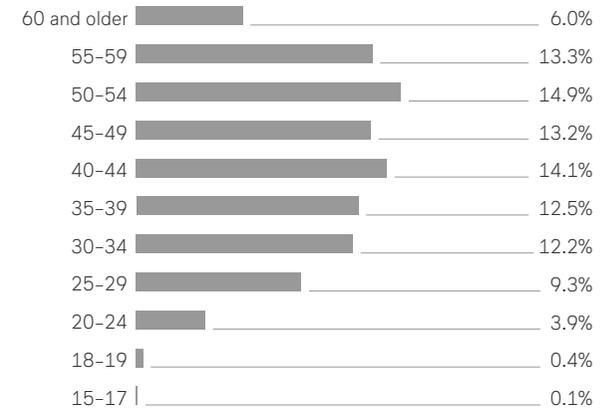
Lufthansa Group, in percent as at December 31

■ Men ■ Total ■ Women



AGE STRUCTURE¹

Lufthansa Group, in percent as at December 31, 2021



Health and safety at work



Further highlights in 2021

- A variety of measures for maintaining Corona infection prevention:**
 - Provision of three vaccination centers and Corona vaccination services for employees
 - Corona vaccines administered to more than 14,000 employees
 - 12-episode podcast provided employees with pandemic-related information of particular relevance to the company
 - Specific digital services for supporting employee health: webinars addressing the special circumstances surrounding the pandemic and the company's situation, complemented by tangible guidance and information about coping mechanisms
 - Expanded offerings for psychosocial counselling and from operational health management during the pandemic – online courses for promoting health and preventing stress and additional newsletters and podcasts about psychosocial topics were provided

- Winner of the Deutscher Personalwirtschaftspreis 2021 („German Human Resources Award“) in the Operational Health Management category

Employees



▲ 3.7

work-related injuries per 1 million working hours

This figure includes all events that resulted in at least one calendar day of lost time. The calculation of the accident figures for 2021 started by including relevant companies that, in Germany, are insured with the liability insurance association that is responsible for most Lufthansa Group companies (BG Verkehr). In total, these companies employ 48% of the Lufthansa Group's employees worldwide and 83% of its employees in Germany. This result is significantly less than the 2020 benchmark of 25.7 published by BG Verkehr and of 12.1 for all German companies – whose results are only calculated as of the third day of lost time. The Lufthansa Group calculates its injury rate starting on the very first day of lost time.

HEALTH INDEX¹

Lufthansa Group, in percent 2021



The Health Index is a core indicator of employee health and is calculated annually as part of the „involve me!“ employee survey. The result is presented on a scale from 1 (best score) to 5 (lowest score). Despite the company's extraordinary situation, the score deteriorated only slightly, to 2.3, in 2021.

In addition to analysing the Health Index, the Group also analyses work-related factors that are closely related to the Health Index. All managers and health coordinators at the Group's individual companies receive a results report containing a selection of specific and supporting advice for actions and initiative offerings.

¹ Companies participating in the "involve me!" survey represent 86% of all Lufthansa Group employees.

Societal engagement



Closer to the world. Closer to its people.

help alliance is the aid organisation of the Lufthansa Group and its employees. It is the cornerstone of the Lufthansa Group's societal engagement. As an international company and part of the German and international communities, it has a responsibility for current social challenges that goes beyond its purely business-related activities. help alliance was started by 13 Lufthansa employees in 1999 and, today, is a registered non-profit organisation which brings together 48 projects globally under its roof. These projects aim above all to enable access to education for younger generations and empower them to live an self-determined life. In addition to its focus on education, help alliance also supports

entrepreneurship. It has given support to roughly 140 projects around the world over the years. All elements of these projects are based on the strict standards of the UN Convention on the Rights of the Child and contribute to the **United Nations' SDGs.**

In its regular **annual report**, help alliance presents a look back at the year and its many highlights. The report includes information such as detailed figures about the effect of its projects, exciting impact stories from projects across the world, donation highlights and key financial data.



A new life for (un)lucky children

India



Inclusion rocks for everyone

Germany



Austrian Airlines trainees involved in help alliance project

Gambia



Further highlights in 2021

- **16 evacuation flights** from Tashkent organised and operated on behalf of the German government within just a few days.
- **Lufthansa Cargo** supported the **UNICEF Humanitarian Airfreight Initiative**. This initiative brought together airlines that cover routes in over 100 countries in order to assist with the **COVAX Facility**. The initiative's goal is to give all people the possibility of getting a Corona vaccine regardless of a country's economic state.
- **Supported global supply chains and provided urgently needed goods** by maintaining relevant routes despite ongoing travel restrictions.
- **help alliance** oversaw 48 aid projects in roughly 20 countries, with a **project volume of €2.7 million – 87% of which went into promoting education** – approximately **40,000 disadvantaged people** worldwide received support.

Glossary

Carbon dioxide (CO₂)

Gas resulting in nature from the burning or decomposition of organic substances (e.g. plant material). The greenhouse gas CO₂ remains in the atmosphere for about 100 years. Scientists attribute the increase in atmospheric CO₂ over the last 100 years to the burning of fossil fuel (e.g. coal, oil, natural gas) by humans. Per tonne of fuel, 3.15 tonnes of CO₂ result from the combustion process. Currently, 2.8 percent of the CO₂ emissions due to human activities are caused by global air traffic.

(Source: International Energy Agency (IEA) 2018, 2016 values)

Carbon monoxide (CO)

Chemical compound consisting of one carbon and one oxygen atom, formed in the incomplete combustion process of substances containing carbon. For aircraft engines, the level of CO emissions depends greatly on the thrust level: The emissions per kilogram of fuel burned are higher at idle settings, while taxiing, and on approach than during the climbing and cruising phases.

Chapter 4 and Chapter 14 aircraft

The ICAO distinguishes between different noise standards, which are defined in related chapters of Annex 16 to the Convention on International Civil Aviation. The Environmental Committee (CAEP) of the ICAO agreed on the Chapter 4 noise standard in September 2001, according to which all aircraft newly certified since 2006 must remain cumulatively below the Chapter 3 noise levels by 10 decibels or more. In 2014, the ICAO agreed on the new Chapter 14 noise standard, which requires that aircraft must cumulatively remain 17 decibels below the Chapter 3 noise levels. This standard is initially applied to new aircraft with a maximum takeoff weight of more than 55 tonnes that are certified after December 31, 2017. For aircraft below this weight the new certification values are applied from December 31, 2020.

Decibel (dB)

Measuring unit for the intensity and pressure of sound. The difference in intensity between the softest sound the human ear can perceive and the pain threshold is 1:10 trillion. To depict this enormous range objectively, acoustics uses the logarithmic decibel scale. On this scale, the value „0“ is assigned to the perception threshold (for a sound of 1,000 Hz) and the pain threshold at the value „130“. An increase of 10 dB corresponds to a tenfold increase in sound intensity. For the perceived volume, a difference of 10 dB corresponds to half or double the volume. However, the human ear is not equally sensitive across the entire range of frequencies. Low and high sounds are not perceived as being equally loud even at the same intensity. For measurements, this difference is equalized and noted accordingly. The best known such notation is the A value, marked by the index dB(A). To measure aircraft noise, the EPNdB (Effective Perceived Noise Decibel) unit is used internationally.

Freight tonne kilometers (FTKO/FTKT)

Airlines distinguish between freight performance offered (FTKO, freight tonne kilometers offered) and its sold freight performance (FTKT, freight tonne kilometers transported). See also „Tonne kilometers“.

Fuel Dump

Dumping of fuel in flight due to emergency situations to reduce a long-haul aircraft's weight to the maximum allowed landing weight before unscheduled landings (e.g. in the event of technical problems or serious passenger illness). Special air space is assigned to the aircraft, if possible above uninhabited or thinly populated areas. Fuel is usually dumped at altitudes of four to eight kilometers. A minimum altitude of 1,800 meters and a minimum speed of 500 km/h are required. The aircraft may not fly a fully closed circle. The dumped kerosene is released from outlet valves and forms a fine mist behind the aircraft. So far, no

contamination has been detected in plant or soil samples after fuel dumps.

Great-circle distance

The shortest distance between two points on the Earth's surface, measured in kilometers (great circle kilometers) or nautical miles. The center of a great circle is the center of the Earth.

Nitrogen oxides (NO_x)

Chemical compounds consisting of one nitrogen and several oxygen atoms. NO_x is defined as the sum of NO and NO₂ compounds. Natural sources include lightning and microbes in the soil. Nitrogen oxides are also generated in combustion processes under high pressures and temperatures. However, future combustion chambers of an advanced design could help reduce NO_x emissions by 85 percent. Air traffic contributes two to three percent of man-made NO_x emissions. Climate models show that nitrogen oxides have increased the concentration of ozone at cruising altitudes by a few percentage points.

Passenger kilometer (PKO/PKT)

Measure for transport performance in passenger carriage (number of passengers multiplied by distance flown). A distinction is made between available transport performance (PKO, passenger kilometers offered, or, synonymously, SKO, seat kilometers offered) and actual transport performance (PKT, passenger kilometers transported).

Seat kilometer (SKO)

Measure of the transport capacity available (SKO, seat kilometers offered).

Tonne kilometer (TKT/TKO)

Measure of transport performance (payload multiplied by distance). A distinction is made between available transport

Glossary

performance (TKO, tonne kilometers offered) and the actual transport performance (TKT, tonne kilometers transported). In calculating payloads, passengers are taken into account by means of a statistical average weight.

Unburned hydrocarbons (UHC)

Organic mixture of carbon and hydrogen that results from the incomplete combustion of fuel containing hydrocarbons or from the evaporation of fuel.



Editorial information

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p. 12: Lufthansa Group,
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Contact

Claudia Hügel
+49 69 696 54050
Deutsche Lufthansa AG
ESG-Reporting
Lufthansa Aviation Center
Airportring
60546 Frankfurt am Main
claudia.huegel@dlh.de

You can find more information about sustainability at the Lufthansa Group at:

➤ lufthansagroup.com/en/responsibility

You can find the Group's 2020 Annual Report, including its non-financial declaration, at:

➤ investor-relations.lufthansagroup.com