LUFTHANSA GROUP

BALANCE

Sustainability report, Issue 2018

Cover story

Creating value sustainably

SUSTAINABILITY REPORT ONLINE
lufthansagroup.com/responsibility

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ABOUT THIS REPORT

Balance, the Lufthansa Group's Sustainability Report, informs stakeholders and the interested public about the Group's goals, activities and advances in the areas of business, social responsibility, environment, product and corporate citizenship. It thus complements and expands the information in the Annual Report.

Across the Lufthansa Group, Corporate Responsibility is understood to comprise the following dimensions:

- Economic sustainability
- Corporate governance and compliance
- Climate and environmental responsibility
- Social responsibility
- Product responsibility
- Corporate citizenship

This report has been prepared in accordance with the GRI Standards: Core option. This publication also serves as a progress report concerning the implementation of the ten principles of the UN Global Compact, which the Lufthansa Group joined in 2002 and to which it has been committed as "Participant" since 2018. The Group determined the most significant topics related to sustainability in 2016 in the context of a materiality analysis, which is based on the results of a stakeholder survey. In 2017, an internal evaluation was carried out (see page 22).

Scope of consolidation and comparability

Unless noted otherwise, the data in this report refers to the financial year 2017. You will find explanations concerning the scope of consolidation and calculation methods used to determine the absolute and specific resource consumption at the Lufthansa Group on page 95. This report covers the activities of the Lufthansa Group. Under the aspect of materiality, reporting primarily focuses on the product of "flying" without upstream and downstream processes. Reporting restricted to individual Group companies is indicated in the text. Due to changes in the portfolio over recent years, the figures for personnel and environmental performance cited in this report are only to a limited extent comparable with those reported for previous years. For example, Brussels Airlines, which has been full part of the Lufthansa Group since January 2017, was included for the first time in this report's coverage during the reporting year. There are also certain differences in approach compared to the Annual Report when calculating passenger numbers and their derivative performance indicators (see explanations relating to the overview on page 2, At a glance).

Publication dates of this report

Balance, the Lufthansa Group's Sustainability Report, is published once a year in German and in English. The preceding edition was published on July 3, 2017. The Group has regularly reported about its environmental performance since 1994 and has continuously expanded its reporting to the other dimensions of entrepreneurial responsibility.

Additional information on the Internet

In addition to this report, the Lufthansa Group informs readers via the Internet about its activities in the area of sustainability:
↗ www.lufthansagroup.com/responsibility

Disclaimer in respect of forward-looking statements

The data included in this report has been collected and processed with the utmost care. Nevertheless, errors in transmission cannot be ruled out entirely. Information published in this report with regard to the future development of the Lufthansa Group and its subsidiaries consists purely of forecasts and assessments and not of definitive historical facts. Its purpose is exclusively informational, identified by the use of such forward-looking terms as believe, expect, forecast, intend, project, plan, estimate, count on, can, could, should or endeavor. These forward-looking statements are based on all the discernible information, facts and expectations currently available.

Numerous factors affect the facts and forecasts published in this report, which are in large part outside the Lufthansa Group's sphere of influence. This includes, among others, changes in national and international laws and regulations or fundamental changes in the economic or political environment.

It is possible that the Group's actual results and development may differ materially from the forward-looking statements implied by the forecasts. The Lufthansa Group assumes no obligation for and does not intend to adapt forward-looking statements to accommodate events or developments that may occur at some later date. Accordingly, it neither expressly nor conclusively accepts liability, nor does it give any guarantee for the actuality, accuracy and completeness of this data and information. Accordingly, it neither expressly nor conclusively accepts liability, nor does it give any guarantee for the actuality, accuracy and completeness of this data and information.

1 Taken from the Annual Report 2017 of the Lufthansa Group. 2 For the reporting year 2017, the following companies have been included in Balance: Lufthansa (including Lufthansa CityLine and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings (including Germanwings), Brussels Airlines and Lufthansa Cargo. Excluding the services of third parties, i.e. airlines outside the scope of consolidation of Balance, but that take over services from Lufthansa, for example in the event of capacity bottlenecks (see page 96, table "Share of third parties"). 3 Types of flights taken into account: all scheduled and charter flights. 4 See page 96 "Fuel consumption". 5 Balance: segments (operational perspective); Annual Report: distance (customer perspective). One distance can include several segments, e.g. in the event of stops en route. 6 Balance: on the basis of all passengers aboard; Annual Report: on the basis of all revenue passengers. 7 Companies referred to as in 2, but including the services of third parties, as these contribute to the Group's results. Types of flights as in 3, but including ferry flights, as these represent costs.

AT A GLANCE

BUSINESS PERFORMANCE DATA [1]		2017	2016	Change
Revenue	million €	35,579	31,660	+ 12.4 %
of which traffic revenue	million €	28,399	24,661	+ 15.2 %
EBIT	million €	3,310	2,275	+ 45.5 %
Adjusted EBIT	million €	2,973	1,752	+ 69.7 %
EBITDA	million €	5,362	4,065	+ 31.9 %
Net profit/loss for the period	million €	2,364	1,776	+ 33.1 %
Total assets	million €	36,267	34,697	+ 4.5 %
Cash flow from operating activities	million €	5,037	3,246	+ 55.1 %
Capital expenditure (gross)	million €	3,005	2,236	+ 34.4 %
Equity ratio	percent	26.5	20.6	+ 5.9 PP

PERSONNEL DATA		2017	2016	Change
Number of employees (on December 31, respectively)		129,424	124,306	+ 4.1 %
of these, in Germany		69,142	68,181	+ 1.4 %
of these, outside Germany		60,282	56,125	+ 7.4 %
Staff costs	million €	8,172	7,354	+ 11.1 %
Revenue/employee	thousand €	275	255	+ 7.8 %
Staff costs/revenue	percent	23.0	23.2	– 0.2 PP
Average age	years	42.2	42.2	± 0.0 years
Part-time ratio, absolute	percent	28.6	27.4	+ 1.2 PP
Part-time ratio, men	percent	14.4	14.0	+ 0.4 PP
Part-time ratio, women	percent	45.3	43.4	+ 1.9 PP
Share of women in management (Germany)	percent	16.5	16.9	– 0.4 PP
Share of women in management (worldwide)	percent	15.1	15.6	– 0.5 PP

ENVIRONMENTAL DATA [2,3]		2017	2016	Change
Resource consumption				
Fuel consumption [4]	tonnes	9,618,095	9,055,550	+ 6.2 %
Fuel consumption, specific, passenger transportation	l/100 pkm	3.68	3.85	– 4.5 %
Fuel consumption, specific, freight transport	g/tkm	215	224	– 4.1 %
Emissions				
Carbon dioxide emissions	tonnes	30,296,998	28,524,981	+ 6.2 %
Carbon dioxide emissions, specific, passenger transportation	kg/100 pkm	9.27	9.71	– 4.5 %
Nitrogen oxide emissions	tonnes	151,402	139,008	+ 8.9 %
Nitrogen oxide emissions, specific, passenger transportation	g/100 pkm	46.1	47.0	– 1.9 %
Carbon monoxide emissions	tonnes	21,922	19,320	+ 13.5 %
Carbon monoxide emissions, specific, passenger transportation	g/100 pkm	7.2	7.1	+ 2.4 %
Unburned hydrocarbons	tonnes	2,226.1	1,880.4	+ 18.4 %
Unburned hydrocarbons, specific, passenger transportation	g/100 pkm	0.7	0.7	+ 7.8 %

TRANSPORT PERFORMANCE DATA		Balance [2,3]	± 2016	Annual report [7]	± 2016
Flights [5]		990,794	+ 5.8 %	1,130,008	+ 10.6 %
Passengers carried [6]	thousand	118,964	+ 12.3 %	130,040	+ 18.6 %
Seat kilometers offered, SKO	million pkm	304,916	+ 9.2 %	322,821	+ 12.7 %
Freight tonne kilometers offered, FTKO	million tkm	15,344	+ 4.8 %	15,619	+ 3.3 %
Passenger kilometers transported, PKT [6]	million pkm	252,660	+ 11.6 %	261,156	+ 15.2 %
Freight tonne kilometers transported (including third-party performance), FTKT	million tkm	10,173	+ 9.6 %	10,819	+ 7.4 %

“
We also want to take a leading role within our industry in the important area of sustainability.

Dear Readers,

The financial year 2017 was the most successful one in the Lufthansa Group's history; we achieved an all-time best result. All companies within the Group contributed to it. Overall, the airlines of the Lufthansa Group welcomed more than 130 million passengers over the past year and again set a new passenger record. At the same time, we reduced the average kerosene consumption per passenger and 100 kilometers by 4.5 percent to 3.68 liters – also a new record! This is the welcome result of our continuous fleet modernization and efficiency programs.

To make our flight operations as environmentally friendly as possible, we will continue to invest in economic, fuel-efficient and quiet aircraft. The Supervisory Board approved an order for up to 16 more aircraft in May 2018. Thus we have about 190 aircraft on order at the moment.

The cover story in this issue of Balance, “Creating value sustainably”, shows how we are organizing our core business as well as the upstream and downstream processes in sustainable ways. We also want to take a leading role within our industry in the important area of sustainability. That is why we make sure that our entrepreneurial activities are managed sustainably and responsibly. As a “Participant” in the UN Global Compact, we gain consistent orientation from its ten principles, and we launched further measures during the reporting year aimed at actively implementing these self-commitments in our sphere of influence. For example, in 2017 we adopted our Code of Conduct, which documents our values, principles and standards of conduct in our daily operations. This includes respecting human rights.

As a modern and cosmopolitan company we are continuously evolving. Our approximately 130,000 employees worldwide are vital for our business success. Furthering their careers, for example by means of our programs for junior and management staff, is one of the most important tasks of our personnel management.

Last but not least, corporate citizenship is part of our sustainable management. We now concentrate on the action areas Education/Enabling and Life/Health. Under the roof of our charitable aid organization help alliance we supported 37 aid projects around the world in 2017 alone. We will further cultivate these activities and associate them more closely with our personnel strategy.

I thank you for your interest and wish you a captivating read.

Carsten Spohr
Chairman of the Executive Board and CEO
Deutsche Lufthansa AG

THE LUFTHANSA GROUP

The Lufthansa Group is an aviation company with worldwide operations and more than 550 subsidiaries and affiliated companies. The portfolio comprises the Network Airlines, the Eurowings Group and Aviation Services. The Lufthansa Group's goal is to be the first choice in aviation for shareholders, customers, employees and partners, and to continue to play a significant role in shaping the global aviation market. In 2017 the Lufthansa Group achieved the best result in the Company's history. The airlines within the Lufthansa Group welcomed more than 130 million passengers and thus set a new record.

↗ **www.lufthansagroup.com**

A DAY AT THE LUFTHANSA GROUP

1,700

aircraft supported

3,096

flights

356,274

passengers

1.91 million

meals

AT A GLANCE

Corporate headquarters
Cologne

Legal form
Stock corporation

Total revenue 2017
35.6 billion euros

Number of employees on 31.12.2017
129,424

Number of nationalities
147

THE SET-UP OF THE LUFTHANSA GROUP

NETWORK AIRLINES

The business segment Network Airlines comprises the companies Lufthansa, SWISS and Austrian Airlines. They offer their customers a premium product and, thanks to the multi-hub strategy, a comprehensive route network combined with the highest degree of travel flexibility.

↗ www.lufthansa.com | www.swiss.com | www.austrian.com

EUROWINGS GROUP

The business segment Eurowings Group comprises the flight operations of the Eurowings Group as well as Brussels Airlines and the equity investment in SunExpress. They offer an innovative and competitive product for price-sensitive and service-oriented customers in the growing direct-traffic segment.

↗ www.eurowings.com | www.brusselsairlines.com

AVIATION SERVICES

The Aviation Services are leaders in their worldwide markets and strengthen the portfolio of the Lufthansa Group. They include the business segments Logistics, MRO (Maintenance, Repair and Overhaul), Catering as well as other companies and Group functions.

Lufthansa Cargo

Lufthansa Cargo AG, with headquarters in Frankfurt, is the Lufthansa Group's specialist for logistics and Europe's leading cargo airline.

↗ www.lufthansa-cargo.com

Lufthansa Technik

Lufthansa Technik AG, with headquarters in Hamburg, is the world's leading manufacturer-independent provider of maintenance, repair and overhaul services for civil commercial aircraft.

↗ www.lufthansa-technik.com

LSGgroup

The LSG Group offers a comprehensive portfolio of products in all areas of in-flight services. With the expertise of the established LSG Sky Chefs brand, the largest network of in-flight kitchens worldwide, it is the industry leader for high-quality in-flight catering. The group's parent company, LSG Lufthansa Service Holding AG, is headquartered in Neu-Isenburg.

↗ www.lsgskychefs.com

Hubs
Frankfurt, Munich, Zurich, Vienna

Number of aircraft in the Group's fleet
728

Number of passengers in 2017
more than 130 million

Number of destinations (summer timetable 2018)
343 destinations in 103 countries

CREATING VALUE **SUSTAINABLY**

Conducting business according to responsible and sustainable principles – in all Company areas and along the entire value chain – is an aspiration that forms the basis for the Lufthansa Group's business activities and its guidelines day after day. Be it in procurement, flight operations or the customers' travel experience: Sustainable conduct – with a specific focus on quality, efficiency and innovation – generates added value in the economic, social and ecological spheres. At the same time, applying value-based management and steering approaches ensures that responsible and future-oriented thinking is anchored in all decision-making processes. Long-term value creation on the basis of solid finances is the fundamental prerequisite for the Lufthansa Group to stay on course in the future as well.

Follow us along the value chain: On the pages ahead we will show you just how sustainable the "product of flying" is already today.

SUSTAINABILITY
ALONG THE VALUE CHAIN

The following overview illustrates the Lufthansa Group's value chain in a simplified form. It demonstrates how the Company takes specific aspects of sustainability into consideration, in particular in its core business, but also in upstream and downstream processes.

Research & development

Participation in research and innovation projects in cooperation with aircraft manufacturers, airports, fuel producers and scientific institutions

The Lufthansa Innovation Hub develops and tests innovative business models.

Supply chain & procurement

Integration of sustainability aspects into the procurement process

Continuous investments in new aircraft and engine technologies

Core business

AIRLINES

Four-pillar strategy as the basis for all climate-relevant activities across the Lufthansa Group. This includes the deployment of modern and fuel-efficient aircraft as well as measures to increase the energy and resource efficiency in operations.

Deployment of quiet aircraft and additional measures to perceptibly reduce noise emissions in the proximity of airports.

Step-by-step expansion of environmental management systems

Promoting diversity and equal opportunity at the Lufthansa Group

Training and continuing education for employees

Comprehensive health management and occupational safety

Value-based corporate management with regard to financial, social and ecological aspects is a fundamental requirement for increasing Company value long-term.

Responsible and lawful conduct is a significant element of corporate culture. The Lufthansa Group Code of Conduct summarizes principles and guidelines, and is binding for all bodies, executives and employees within the Lufthansa Group.

“product of flying”

AVIATION SERVICES

Lufthansa Cargo

Lufthansa Technik

LSGgroup

Careful use of resources by means of effective waste management on board and on the ground

Efficient maintenance procedures for aircraft and aerodynamic improvements

Promotion of e-mobility across ground services

CUSTOMERS & DISTRIBUTION

Product offer compatible with sustainable consumption:

- Customers are able to compensate the CO_2 emissions of their flights on a voluntary basis.
- Lufthansa Express gives customers the option of combining air travel with rail, bus or car-sharing services.
- Digital processes help reduce paper consumption.

Regular measurements of customer satisfaction to increase the level of customer orientation.

Flight safety as well as passengers’ and crews’ health have the highest priority for the Lufthansa Group.

Recycling & disposal

After withdrawal of aircraft from the fleet:

- Sale of aircraft and continued operation by new owners
- Decommissioning of aircraft and recycling or up-cycling

Separation of waste materials and use of recyclable materials

help alliance

Commitment to social issues with the help alliance as the central pillar

FLYING SUSTAINABLY

Expert interview
JÖRG HENNEMANN

Head of Commercial Fleet Management at the Lufthansa Group

MR HENNEMANN, WHAT CHARACTERIZES THE LUFTHANSA GROUP'S FLEET?

Our airlines operate a modern and competitive fleet that covers many different market segments. Aircraft of different sizes are deployed. The spectrum ranges from a 76-seat turboprop to the Airbus A380 with more than 500 seats. The Lufthansa Group is a pioneer when it comes to introducing new, environmentally friendly technologies, the latest example is the Airbus A350-900, which counts among the most modern and environmentally friendly long-haul aircraft worldwide.

TOGETHER WITH YOUR TEAM YOU ARE RESPONSIBLE FOR THE FLEET'S SIZE, COMPOSITION AND ASSIGNMENT FOR THE ENTIRE LUFTHANSA GROUP. WHAT IS ESPECIALLY IMPORTANT IN THIS CONTEXT?

Fleet planning means designing structures a long time in advance. Currently our focus is on two central themes: we want to further harmonize our Group fleet and strengthen our efficiency. We are proud that the about 190 aircraft we currently have on order will allow us to integrate the most environmental friendly models into our fleet that are available on the market at the moment.

190

AIRCRAFT CURRENTLY ON ORDER

WHICH ROLE DOES THE TOPIC OF SUSTAINABILITY PLAY IN THIS CONTEXT?

Sustainability plays an important role in all decisions concerning the fleet. And incidentally, we are lucky that ecology and economy go hand in hand in this case. In the area of fuel consumption, for example: this remains the single most important cost driver of an airline. By operating aircraft with low fuel consumption it is not only our costs that fall, but also CO_2 emissions. The same is true for noise emissions: new, quieter aircraft mean not only lower airport fees but also a lessening of the burden on people living around airports.

WHAT ARE YOUR OPTIONS TO FURTHER IMPROVE THE GROUP FLEET'S ENVIRONMENTAL COMPATIBILITY?

My team and I are active in three areas: firstly – and this is the largest lever – the purchase of efficient aircraft. Secondly, measures on aircraft that increase efficiency or decrease noise. And last but not least, we can influence the manufacturers' development goals related to new aircraft programs.

TO WHICH CRITERIA DOES THE LUFTHANSA GROUP PAY PARTICULAR ATTENTION IN PLANNING FOR AND BUYING NEW AIRCRAFT?

Our decisions concerning the fleet first follow primarily economic decision criteria – only a fleet that can be operated in a sustainably economic way is justifiable from an entrepreneurial perspective. Beyond that, the aircraft needs to fly safely and highly reliably, meet the customers' high expectations concerning the product aboard and, of course, it needs to fit in with the other aircraft in the fleet of the Lufthansa Group. And environmental aspects play an important role – we consider only especially environmentally friendly aircraft a sustainable investment.

WHICH IMPORTANCE DOES THE TOPIC RESEARCH & DEVELOPMENT HAVE IN SELECTING NEW AIRCRAFT?

This is an important topic. We are in a constant dialogue with aircraft and engine manufacturers concerning current technology and product developments, to name one example. This means we can contribute our requirements concerning the sustainability of new aircraft programs. In the case of the Boeing 777-9, we are the so-called "launch customer", and have thus taken a role in the front row and been committed for many years to helping develop the specifications of this long-haul aircraft. Another example comes to mind: With the C Series and the A320neo, we have actively supported the introduction of a new generation of especially quiet and fuel-efficient engines manufactured by Pratt & Whitney.

Plus, I don't want to leave it unmentioned that Lufthansa became the first airline worldwide in 2011 to test the use of biofuel under everyday operating conditions.

WHICH STANDARDS AND REGULATIONS PROVIDE ORIENTATION CONCERNING THE ENVIRONMENTAL PERFORMANCE OF AIRCRAFT?

Ordinarily, we take the requirements of the International Civil Aviation Organization (ICAO) as a reference point. In all important areas, such as noise, emissions and CO_2 emissions, there are current certification regulations which an aircraft must fulfill. In this context, we pay attention not only to currently applied limits being met, but also future ones. Another important criterium for orientation is different local requirements, such as strict noise limits or emissions-related fees.

SPEAKING OF "LIFE-CYCLE MANAGEMENT": ARE OPTIMIZATION MEASURES ALSO APPLIED TO THE EXISTING FLEET TO INCREASE THE ECO-EFFICIENCY IN FLIGHT OPERATIONS?

Yes, improvements on aircraft in the existing fleet are an integral part of our sustainability strategy. This includes optimizations of engines to reduce fuel consumption, retrofitting aircraft with sharklets, noise-reducing measures, such as vortex generators on the Airbus A320 or specialized linings in the engine air inlets.

WHAT HAPPENS TO AIRCRAFT THAT LEAVE THE FLEET?

Some aircraft are flown by other operators after leaving the fleet. But most aircraft that leave our fleet are at the end of their commercial lifespan, while they contain many valuable parts. These aircraft are usually dismantled and usable parts are marketed for further use. The rest of the aircraft is separated by material category for recycling.

WHEN WILL THE FIRST E-AIRCRAFT FLY FOR THE LUFTHANSA GROUP?

At current state of technology the operation of large aircraft with a pure e-propulsion system is not realistic for the foreseeable future. The energy density of batteries is simply too low for this purpose. But we are observing the increased use of electrical systems on board. This trend is set to further increase and help to make aircraft more and more efficient.

The Boeing 777-9, set to enter service at Lufthansa in 2020, a SWISS Bombardier CS300 and an Austrian Airlines Boeing 777 (from left).

New life for old aircraft parts

When the Lufthansa Group withdraws an aircraft from its fleet, it is either sold and then operated by another airline – or recycled. A decommissioned aircraft contains numerous valuable materials and parts. For example, up to 92 percent of a jumbo jet's parts can be overhauled and reused. The components are thoroughly checked, repaired and certified, and then fed back into the component pool.

Dismantling of decommissioned aircraft is the task of Lufthansa Technik Component Services (LTCS) in Tulsa, USA. Since 2012, the subsidiary of Lufthansa Technik has taken apart and recycled 37 aircraft: 30 Boeing 737CLs, five Boeing 747-400s and two Boeing MD11s. At the end of the dismantling process only the fuselage is left, which is recycled as scrap metal.

THE LUFTHANSA GROUP – **A SUSTAINABLE JOB ENGINE**

The Lufthansa Group with its roughly 130,000 employees around the world counts among Germany's largest and most attractive employers. As the figures show, the Group is also a sustainable job engine: in 2018 alone, the Lufthansa Group is planning to hire more than 8,000 new employees, including 4,000 flight attendants at the Group airlines. Often, stationing new aircraft at a hub is accompanied by hiring new operative employees. The following overview illustrates how significant are the employment effect and economic power of a single aircraft.

> 8,000

NEW HIRES IN 2018

This is how many jobs are secured by a single aircraft

Each new aircraft is comparable to the creation of a company. For example, an Airbus A350-900 long-haul aircraft provides an employment stimulus of a large company. Within the Lufthansa Group, each aircraft of this type secures about 220 jobs. This number increases to as many as 400 jobs for an Airbus A380 long-haul aircraft. In addition, many more jobs are secured at airports, air traffic control, the manufacturer, suppliers and haulage companies.

EMPLOYMENT EFFECT ILLUSTRATED BY THE LUFTHANSA AIRBUS A350-900

220
JOBS
are secured by an Airbus A350-900 long-haul aircraft operated by the Lufthansa Group.

7
Ground operations

100
Cabin

58
IT, administration, freight, flight training and others

24
Cockpit

11
Catering

20
Maintenance

In addition **MANY MORE JOBS** are secured at airports, air traffic control, the manufacturer, suppliers and haulage companies.

An Airbus A350-900 long-haul aircraft has the employment effect of a **LARGE COMPANY.**

TRAVELING **SUSTAINABLY**

The airlines of the Lufthansa Group always aim at providing their passengers with a perfect travel experience. Therefore, the goal is to continuously monitor services along the travel chain and to develop innovative products at the same time. Digitalization and sustainability considerations play an important role in this context.

SMILE

One of the Lufthansa Group's central digitalization and personalization projects is SMILE. The program's task is to make communication with each customer along the entire travel chain as personal as possible with the goal of offering him or her a higher level of added value. This digital innovation allows the Group to understand even better what each passenger needs in order to enjoy a perfect travel experience (see page 55, Balance 2017).

CO_2-NEUTRAL FLYING

Passengers of the Lufthansa Group airlines already fly particularly fuel-efficiently thanks to modern aircraft and fuel-efficiency programs. In addition, the Group already offers its customers in large part the option of voluntary CO_2 compensation: these donations are channeled to certified projects that support climate-friendly sources of energy.

ARRIVING IN A RELAXED STATE OF MIND

Be it jet lag, earache or motion sickness, the Lufthansa Group supports its passengers with comprehensive information in the area of travel medicine. Customers with an increased need of care benefit from additional specific assistance which provides them with optimum comfort on the ground and on board.

For further information about services along the travel chain see pages 12 f., Balance 2017, and pages 68 f., Balance 2016, as well as page 84 ff. in this report, Service and customer orientation.

CREATING VALUE
SUSTAINABLY

In 2017, the Lufthansa Group achieved the best results in the Company's history. This success is based on the trajectory of modernization with cost reductions and simultaneous investments in quality. Furthermore, sustainable corporate governance makes a significant contribution to financial, social and ecological aspects and, ultimately, to further increasing Company value over the long-term.

Development of financial Key Performance Indicators (KPIs)

REVENUES (IN BILLIONS OF EUROS) INCREASED BY 12 PERCENT

UNIT COSTS [1] (IN EURO CENTS) DECLINED BY 0.4 PERCENT

1.8 BILLION EUROS OF VALUE CREATED (EACC) [2]

1 constant currency CASK excl. fuel
Unit costs (CASK) denote the operating expenses divided by offered seat kilometers.

2 EACC = Earnings After Cost of Capital (€m)

Key points on

COMPANY & RESPONSIBILITY

01

20 _ STRATEGY AND MANAGEMENT
28 _ COMPLIANCE AND HUMAN RIGHTS
31 _ SUSTAINABILITY IN THE SUPPLY CHAIN
32 _ FLEET MANAGEMENT
36 _ SUSTAINABLE INNOVATION, RESEARCH AND DEVELOPMENT

Developments in society have a profound influence on the business activities and sustainability agenda of the Lufthansa Group. Among the worldwide megatrends and challenges are population growth, increasing mobility, technological progress and the advancing digitalization of numerous processes. Concurrently, environmental protection is gaining increasing importance against the backdrop of climate change and resource shortages. For the Lufthansa Group, facing up to these developments means acting sustainably and responsibly. In this context, the Group places the focus on those aspects that allow it to achieve significant effects. In particular, this includes limiting environmentally relevant effects from flight operations by making comprehensive investments in new aircraft, technologies and products.

The Lufthansa Group is a service company whose economic success depends to a significant extent on the commitment and motivation of its employees. Applying a responsible and sustainable approach to dealing with resources, the environment and employees secures not only long-term financial stability, but also acceptance for its business model inside and outside of the Company as well as attractiveness for customers, employees, shareholders and partners. This also includes the attentive management of opportunities and risks, consistent supply chain management and a constructive dialogue with diverse stakeholder groups. In this way, the Group underscores the goal of fulfilling its role as a leader in the aviation industry, including in the area of sustainability, on a continuous basis.

STRATEGY AND MANAGEMENT

The Lufthansa Group pursues an extensive sustainability agenda, which comprises six dimensions and ensures responsible corporate governance in all business segments (see illustration below). Value-based management is an integral component of sustainable governance for the Group. During the financial year 2017, the Lufthansa Group revised its financial strategy with the aim of sustainably increasing Company value. At the center of attention are the three dimensions of increasing profitability, focusing the use of capital, and safeguarding financial stability. The concept and the related indicators are presented in detail in the chapter "Financial strategy and value-based management" of the Annual Report 2017 (see page 16 ff.). The most important indicators are also shown in this report (see page 2, "At a glance").

The Corporate Responsibility dimensions of the Lufthansa Group

Sustainable management allows the Lufthansa Group to seize opportunities that offer themselves, and also to minimize or entirely avoid risks, including those that might result from more rigorous regulatory requirements. Managing opportunities and risks is integrated into all business processes. During the reporting year, the Lufthansa Group expanded its Group risk management system by the dimension "effects from non-financial aspects on external stakeholders" (see page 66, Annual Report 2017).

Management structure and organization

The highest monitoring body in the area of sustainable management is the Supervisory Board. The coordination and further development of activities and initiatives relevant for sustainability within the Lufthansa Group is the task of the Corporate Responsibility Council (CRC). This interdisciplinary and Group-wide body was established at the senior management level. The CRC consists of the heads of Group Strategy, Policy, Environmental Issues, Investor Relations, Controlling, Legal, Human Resources, Communications and Corporate Sourcing. Individual managers are responsible for implementing concrete activities and projects. They bundle and organize the topics within their respective areas of responsibility.

During the reporting year, the Lufthansa Group interlinked sustainability aspects even more strongly with Group strategy: a working group guided by the department now establishes related control impulses across the entire Group and monitors their implementation. It comprises experts from the same departments and staff units that form the CRC. The team meets twice a month and discusses current issues and challenges in the context of corporate responsibility. During the reporting year, the working group placed its emphasis on two areas: reporting in compliance with the CSR directive and the importance of human rights in entrepreneurial environments. Given the significance of this topic, a separate project group was set up (see page 30, Respect for human rights).

Four questions for
CLAUDIA HÜGEL

Senior Director Group Strategy/Sustainability
Claudia Hügel headed the production of the first non-financial report at the Lufthansa Group in accordance with the CSR Directive Implementation Act.

HOW IS THE LUFTHANSA GROUP POSITIONED WITH REGARD TO SUSTAINABILITY?

Our commitment to sustainability has many facets: from the start, climate protection and active noise abatement have had a particular importance for us. Apart from the ecological aspects, we want to give even more attention to our supply chain. As a globally active company we want to act responsibly and lawfully within the Group and along the supply chain, and we want to make sure that human rights are respected. Our Code of Conduct and our participation in the UN Global Compact have already created a good basis. Now our task is to further develop the management approach and to raise awareness for corporate responsibility within the industry together with other companies.

WHAT DOES THIS MEAN FOR THE LUFTHANSA GROUP IN CONCRETE TERMS?

We already have a broad know-how and a network concerning issues relating to corporate responsibility. We want to improve the steering of these two elements and further develop the existing organizational structure. By doing so, we can advance sustainability topics even more effectively and further sharpen the Lufthansa Group's profile as a leading company within the airline industry – including in the area of sustainability.

The success of our sustainability work also depends decisively on all employees and their involvement. This is another reason why it is important for us to create a motivating working environment, where employees can contribute their ideas and projects.

WHAT ARE THE NEXT STEPS IN THIS CONTEXT?

We have worked for some time in the context of a matrix organization within the Group. Tasks and topics are steered in a process-oriented manner. We take advantage of this approach to optimize the Group-wide management of non-financial aspects, based on the current form of organization. We have noticed an increased level of interest among our customers, shareholders, employees and other stakeholder groups concerning sustainability topics over the past years. This confirms our approach and spurs us on to become even more active in this area and, above all, to seize the associated opportunities more consciously.

WHAT IS THE IMPORTANCE OF THE LUFTHANSA GROUP'S PARTICIPATION IN THE UN GLOBAL COMPACT?

We have been active in the UN Global Compact for more than 15 years. Respecting its ten principles – and since 2015 also supporting the Sustainable Development Goals – is part of our entrepreneurial activities. In 2018, we have again confirmed our commitment in this area by adopting the new "Participant" option. The next step is to assess intensively how we can align our sustainability strategy even more clearly with the global development goals of the Agenda 2030.

Stakeholder dialogue

↗ GRI 102-40, GRI 102-42, GRI 102-43, GRI 102-44

The continuous exchange with stakeholders makes an important contribution to the further development of the Lufthansa Group, its sustainability strategy and the annual reporting on significant topics related to corporate responsibility. The spectrum of stakeholders ranges from customers and employees, investors and suppliers to politicians, municipalities, neighbors, NGOs and scientists, among others. The Group places great emphasis on an open, continuous and trusting dialogue with its internal and external interest groups, and actively seeks exchanges with them by using diverse formats (see page on the right, Stakeholder dialogue: The most important activities in 2017 at a glance).

This dialogue allows the Group to gain a better understanding of needs, expectations and wishes held by different interest groups and enables it to incorporate these in its entrepreneurial activities.

In 2017, the Group thus gathered information on key topics and important employee concerns through the Company-wide employee survey "involve me!". Employees provided a total of about 31,200 open-ended comments on topics such as working conditions, leadership, health and the Company as an employer. The analysis provides insights into possible action areas. For example, the action area "feedback/error culture" was derived from "involve me!" results in 2015. The measures taken by the Group in this area are effective. Also in the area of corporate citizenship, the Lufthansa Group takes stakeholders' wishes and opinions seriously: the Group revised its initially reduced commitment to crane protection – a decision in favor of focusing on social and humanitarian topic areas – given the broad range of stakeholder feedback and decided to continue its support (see page 81, Further commitment).

The stakeholders of the Lufthansa Group

Customers
Consumers

Investors
Shareholders
Analysts
Rating agencies

Governments
Legislators
Politicians
Authorities

Neighbors
Publicity
Social networks

Nongovernmental organizations (NGOs)
Organizations
Consortia

Science
Research &
Education

Employees
Employee representatives

Suppliers
Contractual partners

Stakeholder dialogue: The most important activities in 2017 at a glance

CUSTOMERS

- Continuous, worldwide passenger surveys
- Customer events, customer forums and participation in discussion forums
- Monthly published customer onboard magazine and regular newsletter
- Lufthansa InTouch Service Centers ensure 24-hour reachability for all questions concerning flight reservations
- Digital Aviation Forum 2017
- Event "Lufthansa Cargo in Dialogue" with more than 160 representatives from the logistics industry
- Format "Lufthansa FlyingLab": on selected flights passengers can experience innovative products and services live onboard, test them and provide feedback (see page 37)
- Visitor service "Discover Lufthansa" assumes important function of customer care at largest location, Frankfurt. Tailor-made programs for German and international top customers as well as for airports' neighbors, associations, research institutions and the Lufthansa Group's partner universities

EMPLOYEES

- Group-wide employee survey "involve me!" (see page 69)
- Customer Centricity Days (see page 84)
- Cabin Air Quality Forum
- New format "Pilots' Convention" – pilots in a dialogue with representatives of management
- Continuous communication via the formats pooled in the product group "One": every two months employee magazine "One", news app "One", "eBase One" (intranet news), "Connection One" (community on the social intranet) and the newly introduced large screens at central locations, "Screens One"
- Continuation of dialogue forums for cabin and cockpit employees
- Continuation of CabCons: dialogue events for flight attendants at Lufthansa
- Continuation of the dialogue series "Speaking openly ..." with the Lufthansa Group's CEO at varying Company locations and live transmission on the intranet
- Live chats, web casts and other personal dialogue events for different employee groups and managers in different business segments
- Continuation of the event format "Market conferences": dialogue events with managers and the Lufthansa Group's CEO in different business regions (2017 in Delhi, Brussels and Chicago)

INVESTORS, SHAREHOLDERS AND ANALYSTS

- Continuous and intensive shareholder dialogue
- Beyond the quarterly conferences, Executive Board and Supervisory Board members, and Investor Relations presented the Group's latest developments in 2017 to institutional investors through 34 roadshows, 24 investors' conferences as well as other event formats. In this context, about 400 personal one-on-one and group discussions were held
- Five forums specifically aimed at private investors
- "Shareholder information" for private shareholders
- In addition to annual and interim reports, the capital markets are informed monthly about the latest traffic developments at the airlines of the Lufthansa Group
- All publications, financial reports, presentations, background information and speeches, current news and relevant dates can be consulted at: ↗ **www.lufthansagroup.com/investor-relations**

LAW MAKERS AND PUBLIC ADMINISTRATIONS

- Continuous and intensive exchanges with representatives from politics and administrations as well as participation in numerous events and panel discussions
- "Policy Brief" and "Aeropolitics" are published by the Lufthansa Group and SWISS respectively to inform decision-makers in politics, media and business about developments in the aviation industry and topics related to aviation policy

SCIENCE AND RESEARCH

- Numerous cooperations with scientific research institutions
- Participation in panel discussions and conferences

NEIGHBORS AND LOCAL COMMUNITIES

- Regular information events and discussion round-tables with representatives of state and municipal governments at the Lufthansa Group's hubs
- Participation in the "Forum Airport and Region" in Frankfurt as well as in the "Vienna Airport Dialogue Forum"
- Participation in the German aircraft noise commissions
- Since May 2015, LSG Sky Chefs has been a member of "LEEN 100" (Learning Energy Efficiency Network) initiated by the city of Frankfurt to help reduce CO_2 values in the Rhein-Main area and increase the share of renewable energies
- Lufthansa CityLine has been a member of the fifth "Environmental Pact Bavaria" since September 2015. Its goal is to give incentives to sustainable development and continuous improvement of corporate environmental protection in Bavaria
- Participation of Lufthansa Technik and LZ-Catering in "Environmental Partnership Hamburg" and of Lufthansa Technik in Frankfurt in "Environmental Alliance Hesse"

COMBINED NON-FINANCIAL REPORT

In accordance with the CSR Directive Implementation Act (CSR-Richtlinie-Umsetzungsgesetz – CSR-RUG) passed on April 19, 2017, Deutsche Lufthansa AG has published in its Annual Report a separate combined non-financial report in accordance with Sections 315b and 315c German Commercial Code (HGB) in conjunction with Sections 289c to 289e HGB for the first time for the financial year 2017 and thereafter annually. Deutsche Lufthansa AG has published a separate non-financial report at the Company level and a separate non-financial Group report together as a combined non-financial report. It combines reporting on the following five key issues: environmental concerns, employee concerns, anti-corruption and bribery, human rights and social concerns. In addition, measures and initiatives taken by the Lufthansa Group that demonstrate the Company's wide-ranging engagement to corporate responsibility are described in other passages in the combined management report. References to these passages are made in this report. The combined non-financial report was the subject of a voluntary limited assurance engagement in accordance with ISAE 3000 (revised). It is based on the Sustainability Reporting Standards of the Global Reporting Initiative (GRI Standards 2016). Additional, comprehensive reporting on non-financial topics is presented in this sustainability report.

↗ www.lufthansagroup.com/investor-relations

Materiality analysis

↗ GRI 102-42, GRI 102-43, GRI 102-44, GRI 102-46, GRI 102-47, GRI 102-49

In 2016, the Lufthansa Group carried out a broad-based stakeholder survey, whose findings were used for drawing up a comprehensive materiality analysis (see page 22 f., Balance 2016, and page 19, Balance 2017). It serves the Group as a basis for the strategic further development of corporate responsibility management. In addition, the Company uses the materiality analysis to define or adapt the contents of the sustainability report and the non-financial report (see insert to the left).

During the reporting year, the Lufthansa Group subjected the results of the materiality analysis to an internal verification. As a result, the topic "data protection and data security" was added to the list of significant topics, given its increasing importance. The topics of flight safety and respect for human rights were supplemented. They were not included in the materiality analysis in 2016 because the Lufthansa Group regards them as basis of business activities. The topics sensibilizing employees for sustainability, comprehensible political involvement and local value creation are not significant topics with regard to sustainability reporting in 2017 according to GRI.

Corporate Responsibility: The most important topics at a glance[1]

- Flight safety
- Profitability
- Sustainable innovation, research and development
- Anti-corruption
- Sustainability in the supply chain
- Human rights
- Climate protection
- Energy and resource management
- Active noise abatement
- Service and customer orientation
- Data protection and data security
- Employer attractiveness
- Occupational safety and health management
- Corporate citizenship

1 For further information about the most important topics (Approach, Effect, Goals) refer to the sustainability report Balance, Issue 2017, page 20 f.

Values and standards of conduct

With the aim of continuing the corporate culture based on trust and integrity, and to secure the Company's sustainable success, the Lufthansa Group introduced a binding Code of Conduct for all bodies, executives and employees in 2017 (see page 28 f.). The Group has supported the ten principles of the UN Global Compact for sustainable and responsible corporate governance since 2002. The initiative's goal is to help shape globalization in socially and environmentally compatible ways. Since 2018, the Lufthansa Group has been committed to the "Participant" tier in this alliance between United Nations and businesses. In this way, the aviation group confirms again its self-commitment of aligning its business strategy with the ten globally recognized principles covering the areas human rights, labor standards, environmental protection and anti-corruption measures. The Lufthansa Group participated in the yearbook "Global Compact Deutschland 2017" with a good-practice example in the subject area of "Digitalization supports sustainable development". The Group shows in it how digitalization programs contribute to the UN Agenda 2030.

Sustainable Development Goals

The central element of the Agenda 2030 is a set of 17 global sustainability goals, which were adopted in September 2015 by the United Nations' members (Sustainable Development Goals, SDGs, see ↗ **www.un.org/sustainabledevelopment**). The SDGs are reflected in the important action areas of the Lufthansa Group. A large part of the global sustainability goals is relevant for the Group, even though intensity and shaping vary.

Of particular importance for the entrepreneurial activities of the Lufthansa Group are support for climate goals (13) and responsible use of resources (12). These are the areas where the Company sees the greatest opportunities for applying its influence in order to make a measurable contribution. The same is true for promoting female employees (5) and the continuous improvement of working conditions (3, 8). In the context of innovation and digitalization projects (9) the Lufthansa Group also pays increased attention to social and ecological compatibility. Among others, this applies to paperless aviation, the promotion of intermodal solutions, electromobility at airports and active noise abatement.

WE SUPPORT

UN GLOBAL COMPACT

THE 10 PRINCIPLES OF THE UN GLOBAL COMPACT

Already since 2002, the Lufthansa Group has participated in the UN Global Compact, the largest initiative worldwide for responsible and sustainable corporate governance. The participating companies commit themselves to aligning their business activities and strategies with ten principles from the areas human rights, labor standards, environmental protection and anti-corruption measures.

HUMAN RIGHTS

1. Businesses should support and respect the protection of internationally proclaimed human rights; and
2. make sure that they are not complicit in human rights abuses.

LABOR

3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
4. the elimination of all forms of forced and compulsory labor;
5. the effective abolition of child labor; and
6. the elimination of discrimination in respect of employment and occupation.

ENVIRONMENT

7. Businesses should support a precautionary approach to environmental challenges;
8. undertake initiatives to promote greater environmental responsibility; and
9. encourage the development and diffusion of environmentally friendly technologies.

ANTI-CORRUPTION

10. Businesses should work against corruption in all its forms, including extortion and bribery.

↗ **www.unglobalcompact.org**

In addition to its entrepreneurial activities, the Lufthansa Group's commitment includes its registered charity help alliance, which was given a new base effective January 1, 2017, whose emphasis is the areas of education and enabling (4). For a long time, high-quality training and continuing education programs have been of particularly high importance across the entire Company. Beyond this, the Group supports the SDGs by means of co-operations with science and research as well as its active participation in numerous national and international committees and workgroups (17). Some examples are its participation in econsense, German industry's forum for sustainable development and its support for climate research (see page 36 f., Sustainable innovation, research and development). An overview of the most important sustainability related memberships is available at: ↗ **www.lufthansagroup.com/responsibility**

Communications and sensibilizing employees

2017 INTERNATIONAL YEAR OF SUSTAINABLE TOURISM FOR DEVELOPMENT

Under the motto "Travel.Enjoy.Respect." the United Nations and the World Tourism Organization (UNWTO) declared 2017 the "International Year of Sustainable Tourism for Development". The Lufthansa Group supported the campaign and its goals as "Friend of the International Year", for example in the social media as well as in other internal and external communication channels.

During the reporting year, the Group made more use of communications than previously to inform its employees, raise their awareness and communicate sustainability topics, for example through explanatory videos, interviews, background information and topic weeks. Beyond these, employees are also made aware of relevant topics related to sustainability by means of voluntary, and sometimes obligatory, training opportunities.

"Communication makes an important contribution to conveying the Lufthansa Group's standards of sustainable business practices in a continuous and transparent way.

Steffen Milchsack
Head of Corporate Responsibility Communications, Lufthansa Group

External evaluation

Sustainability analysts and rating agencies regularly assess the activities of the Lufthansa Group according to criteria of responsible corporate governance. In 2017, the Lufthansa share was again represented in the following sustainability indices:

FTSE4Good
The Lufthansa share has been listed in the FTSE4Good index since 2001. It includes only those companies that meet the internationally accepted standards of entrepreneurial responsibility.

MSCI Global Sustainability Index Series
The MSCI Global Sustainability Index Series has listed the Lufthansa share since 2015. The index family depicts companies with a particular commitment to environmental, social and governance (ESG) issues.

ECPI
The Lufthansa share is listed in the sustainability indices ECPI EMU Ethical Equity, ECPI Euro Ethical Equity, ECPI Euro ESG Equity and ECPI World ESG Equity. ECPI has offered a selection of ESG indices since 1997 and uses its own evaluation method that is based on exclusion criteria as well as positive criteria in the categories environment, social issues and corporate governance. Only a few hundred companies are included in these indices, which depict suitable, sustainable investment according to ECPI's assessment.

The Lufthansa Group received the following ratings in 2017:

CDP: scoring result "A-"
In the 2017 climate change reporting of CDP, the international charitable rating organization, the Lufthansa Group reached leadership status in the global ranking, with the Climate Scoring Result "A-" (previous year: "B"). The aviation group thus not only ranks again among the best in its industry in Germany, Austria and Switzerland according to the CDP evaluation, but is now also listed in the highest ranking segment. Moreover, the Lufthansa Group also received the ranking "A-" in the "CDP Supply Chain Information Request for Climate Change 2017", in which approximately 4,800 companies worldwide participated.

oekom Corporate Rating: "Prime" status
In the oekom Corporate Rating of November 2017 the Lufthansa Group again received "Prime" status. It thus belongs to the group of "Industry Leaders" among a total of 69 aviation companies evaluated. The rating process evaluates the social and environmental compatibility of companies against more than 100 selected industry-specific social and ecological criteria.

COMPLIANCE AND HUMAN RIGHTS

Compliance and respecting human rights are significant elements in the entrepreneurial activities of the Lufthansa Group. For the Company it is self-evident to comply with applicable law as well as voluntary self-commitments, and to actively consider ethical principles, too.

The Lufthansa Group Code of Conduct, which was adopted in 2017 and internally and externally communicated in 2018, contains the principles and guidelines that are binding for all bodies, executives and employees in daily business life. The code also serves as an aid to orientation for business partners. The Lufthansa Group expects that they will also adhere to the principles defined in it. The Code of Conduct has been published in nine languages and can be accessed on the Group's intranet and Internet.

Further self-commitments for the Lufthansa Group result from its participation in the UN Global Compact (see page 25), its membership in the anti-corruption organization Transparency International, the Universal Declaration of Human Rights and the four core work standards of the International Labor Organization (ILO).

The Lufthansa Group endeavors to manage the Company effectively, as required by the principles of good corporate governance. In particular, they imply integrity on the part of the employees as a prerequisite for the Company's sustainable success.

The Lufthansa Group reflects these principles by applying corporate leadership and control focused on responsibility and sustainable value generation in accordance with high international standards. Corporate governance is of vital importance in maintaining transparency vis-à-vis the Company's shareholders and continuously increasing trust in the Company's top management.

An essential legal base for these principles are the German Stock Corporation Act and the German Corporate Governance Code. The Declaration of Compliance with the German Corporate Governance Code was updated in December 2017 and has been published on the Internet at
↗ www.lufthansagroup.com/investor-relations

In addition, the Lufthansa Group is listed in the joint transparency register of the European Commission and the European Parliament. The goal of this register with public access is to increase the transparency of decision-making processes on a voluntary basis. Simultaneously, it aims at ensuring that interactions between EU institutions and organizations, associations and corporations are conducted in conformity with current laws and carried out on the basis of ethical principles.

Fighting corruption and bribery

Corruption risks may occur in companies worldwide, including within the Lufthansa Group or at its business partners. Therefore, the issue of anti-corruption is significant for the Group as it makes an important contribution to strengthening fair competition, integrity and responsible conduct. The Lufthansa Group's goal is to further increase awareness of the issue of anti-corruption throughout the Company and to ensure conduct in conformity with applicable law and regulations.

Its global operations mean that the Lufthansa Group is obliged to comply with national anti-corruption legislation around the world and in some cases with anti-corruption laws that have extraterritorial application. Infringements may not only result in criminal and civil penalties for the individuals and companies involved, but may also result in incalculable reputational damage. Combating and preventing corruption and bribery is also an integral part of the Lufthansa Code of Conduct and is essential for the business operations of the Lufthansa Group.

To ensure this outcome, the Lufthansa Group's Compliance Management System aims at keeping employees and the Company from breaking the law and supporting employees in applying laws correctly. The Compliance Management System consists of the modules Competition, Capital Market, Integrity (anti-corruption) and Embargo Compliance (see page 25, Balance 2017).

Corporate Compliance Office

The Group-wide implementation, development and communication of the Lufthansa Group Compliance System is the responsibility of the Group Compliance Office, which is part of the central Legal Department. It is supported by a worldwide network of compliance managers at the Group companies. Continuous self-audits and audits ensure the effective implementation of the compliance program.

The head of the Legal department and Chief Compliance Officer reports directly to the Executive Board member for Human Resources and Legal Affairs and presents two Compliance Reports a year to the Executive Board. The Corporate Compliance Office is supported by a worldwide network of compliance managers at the Group companies. Furthermore, the Steering Committee of the Supervisory Board is informed twice a year about compliance-relevant developments within the Group.

Anti-corruption training

All managers, team leaders and employees from relevant areas participate in obligatory two-year cycles of an IT-based anti-corruption training to make them aware of potential risks.

Automated IT processes ensure that all employees and members of bodies of the Lufthansa Group regularly take part in the web-based compliance trainings that are relevant for them. The Group companies' employees have access to these e-learning courses and are in part already linked to automated mailings or participate in corresponding company-specific processes. As a complement, the Corporate Compliance Office conducts worldwide classroom training and offers workshops. During the reporting year, the Corporate Compliance Office conducted 110 trainings and workshops with more than 1,300 participants. The training offers are directed at managers as decision-makers and multipliers as well as at employees who need in-depth compliance knowledge to handle their tasks.

Risk-based third-party due diligence

A risk-based, third-party due diligence process is intended to ensure the integrity of suppliers and service providers. In the course of the review, the employees in the Corporate Compliance Office carry out compliance screenings. First of all, this entails determining the identity of the business partner in order to then carry out a check against databases in the compliance, embargo, sanctions, PEP (politically exposed person) and watch lists categories, ensuring that there are no

Code of Conduct

The principles anchored in the Lufthansa Group's Code of Conduct are the basis for fair competition and help to avoid legal risks and to identify and avoid reputational risks.

In addition to the Code of Conduct, a number of Company-internal guidelines complement the Code's binding principles and standards of conduct. In particular, this includes the Lufthansa Group Compliance Program, which consists of the following components:

COMPETITION

INTEGRITY

CAPITAL MARKET

EMBARGO

To allow for confidential information concerning potential crimes or violations of laws or regulations, the Lufthansa Group set up an ombudsman system.

relevant entries. Depending on the result, various measures proposed jointly by the Corporate Compliance Office and Corporate Security may be necessary to deal with the business partner.

Review for corruption risks

In addition to the measures mentioned above, all companies in the Group are currently being reviewed for corruption and antitrust risks by means of a compliance risk assessment (see page 26, Balance 2017). Final results with recommendations for further improvements were available in April 2018 for all reviewed units. After the completion of the compliance risk assessment and based on the resulting recommendations, the Lufthansa Group will begin with the implementation of recommendations concerning measures to mitigate the identified and evaluated risks.

Ombudsman system

The Lufthansa Group set up an ombudsman system in 2008 to enable information to be provided confidentially about suspected criminal offences, particularly potential breaches of anti-corruption legislation and regulations. An external, independent lawyer, Dr. Rainer Buchert in Frankfurt, acts as the ombudsman. He is fully bound by the legal professional obligation of secrecy. Informants can give information by telephone, in writing or personally to the ombudsman. He communicates any information he receives to Lufthansa while respecting absolute confidentiality concerning the name and identity of the informant. In this way, the disclosure of an informant's identity to the Company or to third parties without his or her consent is ruled out.

Respect for human rights

As a global company, respect for human rights is self-evident and forms an integral part of the corporate culture of the Lufthansa Group. This is also reflected in working conditions, freedom of association and assembly, rules to ensure gender equality and inclusion of minorities as a matter of course. The Company's participation in the UN Global Compact since the end of 2002 and the Code of Conduct, adopted in 2017, are other commitments that express the importance of human rights for the Lufthansa Group.

The necessity to understand human rights as part of responsible corporate governance is gaining further importance, and in particular for internationally active companies. Germany's federal government has anchored the expectations concerning the implementation of measures for humanitarian diligence within companies by adopting the National Action Plan for Business and Human Rights (NAP) on December 21, 2016.

The Lufthansa Group's overarching goal is to avoid human rights breaches by means of organizational and process-based measures. The Group's procurement policy (see page 31) states that the Lufthansa Group expects its suppliers to respect human rights, too. Contracts should therefore include the possibility of penalties up to and including the immediate termination of the business relationship.

A Human Rights working group was established within the Human Resources and Legal Affairs board function in 2017 and comprises representatives of all relevant head office functions as well as Group companies that are potentially at risk. It has incorporated the standards resulting from the CSR Directive Implementation Act and the National Action Plan for Business and Human Rights into a management concept and ensures the continuous further development of this program. Based on an analysis carried out by Maplecroft, an advisory company, an overview of all Group companies operating in high-risk and extreme-risk countries was drawn up, i.e. countries where the risk of human rights violations is particularly high. Managers and Human Resources departments at these companies should be made aware of their duty of care to avoid human rights violations.

One instrument to achieve this is an internally developed training tool, which is to be implemented in the course of 2018. Furthermore, the companies concerned are called on to identify human rights risks and to report them centrally. Individual complaints may be addressed to managers or to the Human Resources department. The ombudsman system is also available to third parties. The Executive Board is to be notified annually of the type and number of suspicious incidents. An internal complaints procedure is already in place at the Lufthansa Group and is governed by a works agreement for employees in Germany. It is already used for many different kinds of complaints and is to be extended to complaints about human rights violations.

SUSTAINABILITY IN THE SUPPLY CHAIN

The Lufthansa Group has more than 40,000 suppliers. The annual procurement volume is about 18 billion euros.

To meet the standards it sets for the sustainability of its own products, the Lufthansa Group relies on close cooperation with suppliers who share and implement these standards. This approach is also part of the Lufthansa Group's Code of Conduct. The Group expects from its suppliers that they fully comply with current law, guidelines and regulations concerning fair competition, integrity and responsible practices (see page 28 ff., Compliance and human rights).

A transparent supply chain allows the Lufthansa Group to manage procurement processes in a targeted manner. Bottlenecks and weak points can thus be identified quickly and counter measures can be taken. Therefore, setting up and expanding a sustainable supply chain is of strategic importance for the Lufthansa Group.

Since October 2017, the purchasing units in the Lufthansa Group have been organized within a single reporting line under the Chief Financial Officer. They inform the Executive Board about current developments on a regular basis. In some cases, the purchasing units are centralized, especially for airline-specific processes such as purchasing aircraft or kerosene. In other cases they are decentralized throughout the Group companies (for more specialized products). Reporting lines are based on responsibilities for different product groups and Group companies. Defining product groups optimizes the purchasing function in the procurement markets. Reporting on the basis of Group companies ensures the security of the supply.

The introduction of a process-based matrix organization makes it easier to establish sustainability standards because it means that standardized processes and IT systems are increasingly used. The goal is also to improve the enforcement of sustainability standards. The restructuring of the organization that came into effect on October 1, 2017 serves to increase efficiency, cut costs sustainably and avoid risks in the supply chain by means of strict process management. In addition, confidential information concerning potential criminal conduct or violations of laws or regulations are made possible by the Group's ombudsman system.

The Group procurement policy includes the obligation to assume social and ecological responsibility. It is to be understood as an overriding specification for all procurement guidelines at the Group companies. In addition, it serves as a handbook for buyers and all employees with contacts in the procurement markets. Among other considerations, it requires that these obligations be included in contracts with suppliers:

- to comply with the ten principles of the UN Global Compact (see overview on page 25);
- to comply with the four basic principles of the International Labor Organization (ILO);
- to consent to announced and unannounced audits by companies of the Lufthansa Group;
- to accept the termination of the contract in the event that these contractual obligations are breached.

By imposing these obligations, the Lufthansa Group endeavors to ensure responsible practices by its direct suppliers and thus meet its own standards for corporate responsibility.

The Lufthansa Group is currently reviewing its Group procurement policy. At the same time, a Group-wide, standardized and structured supplier screening, which is integrated in the purchasing process, is being implemented.

Binding regulations for chemicals

For the Lufthansa Group, product responsibility in the supply chain also includes the safe use of chemicals. To this end, at the beginning of 2017 Lufthansa Technik adopted a comprehensive policy concerning chemicals: the Restricted and Declarable Substance List. With these binding regulations the Group company obliges its suppliers to declare substances in their products delivered to Lufthansa Technik that are of very high concern – and to replace them as far as this is technically possible, and permissible under aviation law. With this listing, Lufthansa Technik also ensures that its products do not contain so-called conflict minerals.

FLEET MANAGEMENT

The Lufthansa Group counts on a modern, efficient and appropriately structured fleet and continues to invest in the latter's fundamental modernization. By following this approach, the aviation group will be able to offer leading-edge product quality in the future and at the same time fly increasingly economically and quietly. In addition, unit costs can be further reduced in this way. In 2017, the passenger airlines' exchange-rate adjusted unit costs before fuel expenses declined by 0.4 percent (see page 33, Annual Report 2017).

In 2017, the Lufthansa Group took delivery of 29 new aircraft, including seven long-haul aircraft (see page 20 ff., Annual Report 2017). Thus, the Group fleet comprised 728 aircraft at the end of 2017, with an average age of 11.4 years (see page 35, table: The Lufthansa Group fleet). The increase of 111 aircraft when compared to the preceding year is entirely due to the consolidation of Brussels Airlines and the acquisition of aircraft from the Air Berlin Group.

Currently, the Lufthansa Group has firm orders for a total of 192 aircraft, with delivery dates by 2025 (as of May 7, 2018). During the financial year 2018, the Group expects to take delivery of up to 30 new aircraft. The aircraft on order will primarily replace older aircraft.

As before, by far the largest part of the fleet remains in the unrestricted ownership of the Lufthansa Group. This is complemented by a small share of leased aircraft. The majority of aircraft is to remain financially unencumbered in the future and in the unrestricted ownership of the Group. Similarly, the Lufthansa Group will continuously invest in the modernization of the fleet, the onboard and ground products as well as the infrastructure. For new acquisitions the aviation group considers both new and used aircraft. In this way, the Company is able to react flexibly to demand fluctuations and increase or reduce capacity at short notice, while maintaining its high degree of financial flexibility.

At the Lufthansa Group, Fleet Management steers the Group-wide fleet planning process and is thus responsible for the fleet's size and composition, and assignments of aircraft to individual flying companies (see page 10 ff., interview Jörg Hennemann). The internal matrix structure ensures that the Company optimally bundles the technical knowledge available in the Group airlines. On the basis of market analyses and defined parameters, experts select a type of aircraft and determine the number to be ordered. The process from deciding on a particular type of aircraft to taking delivery takes about three to five years. At the same time, Fleet Management calculates the optimum point in time for deploying an aircraft, which increases planning security for distribution, network planning and technical services.

The Group's network airlines essentially grow when older aircraft are replaced by modern models with larger seat capacities and improved fuel efficiency – without a significant increase in the total number of aircraft. At the same time, the Lufthansa Group's fleet strategy has for some years aimed at reducing the number of aircraft types, so that complexity declines and efficiency increases. Fleet harmonization helps reduce maintenance and operation costs, and increase synergies, from pilot and cabin crew licensing to more standardized processes on board and stocking spare parts. After leaving the fleet, aircraft are either sold or recycled (see info box page 13 and page 56, Balance 2016). The majority of the aircraft in the fleet are now manufactured by Airbus and Boeing. In addition, on short- and medium-haul routes the Group airlines also operate aircraft produced by manufacturers Bombardier and Embraer, while Fokker and BAE Systems aircraft have no longer been operated since the end of 2017.

Furthermore, the Lufthansa Group advances the standardization of its Airbus A320 fleet with the goal of obtaining more flexibility and synergies (see info illustration page 33). Austrian Airlines, Brussels Airlines, Eurowings, Lufthansa and SWISS are currently developing a standard specification for the Airbus A320 fleet, which maintains the airlines' brands by means of different corporate identities. This applies to aircraft of the A320 family that will be delivered to the Group from 2019.

In the future, the aircraft will be configured and standardized from the start so as to allow conversions within a short time and with little effort when they are transferred between Group airlines. This allows the Lufthansa Group to react more swiftly and flexibly to current developments, and to move aircraft and capacities more simply and efficiently between its airlines and hubs.

An overview of the Group airlines' fleet development:

Lufthansa

In 2017, Lufthansa put five A320neo aircraft into service. The A320neo is much more fuel-efficient than comparable predecessor models and thus stands out by producing correspondingly lower CO_2 emissions (see page 28 f., Balance 2017, and page 30 f., Balance 2016). In addition, the 85-decibel noise footprint of an A320neo taking off is only about half as large as the comparable footprint of an A320 in the existing fleet (see page 58, Balance 2016). For operations on all continental routes Lufthansa counts on a fleet that consists exclusively of aircraft from the Airbus A320 family and comprised a total of 170 aircraft of the types A319, A320 and A321 as of December 31, 2017.

Lufthansa Group airlines to standardize A320 fleet

Uniform specification for all aircraft of the Airbus A320 family, which will be delivered to the Lufthansa Group from 2019 onwards

A Boeing 777-300ER operated by SWISS.

An Airbus A320 operated by Eurowings.

For long-haul routes, Lufthansa stationed the first Airbus A350-900 aircraft in Munich. They consume about 25 percent less fuel, produce correspondingly lower CO_2 emissions and are significantly quieter during takeoff and landing than comparable types of aircraft (see page 57 ff., Active noise abatement). In addition, the airline moved five of its 14 Airbus A380 aircraft from Frankfurt to Munich. Since the summer timetable 2018, these aircraft fly to Los Angeles, Hong Kong and Peking to provide further growth opportunities at the Munich hub.

From 2020, Lufthansa is also set to receive the first, highly efficient Boeing 777-9 long-haul aircraft, on which the new Business Class will be deployed for the first time. The latter is characterized above all by new seats that will offer passengers a lot of privacy and optimum sleeping comfort.

Meanwhile, Lufthansa CityLine has successfully flown the Bombardier CRJ series for 25 years. The CRJ900 aircraft represent fuel efficiency, low emissions values and low noise burdens. Currently, the 35 CRJ aircraft, which are complemented by Embraer 190 and 195 aircraft, represent the most significant part of the fleet.

After roughly 30 years the Lufthansa fleet is receiving a new livery. The first aircraft made their appearance featuring the new brand design in the beginning of February 2018, which makes the airlines' modernization visible to the outside as well.

SWISS

In 2017, SWISS continued the largest fleet modernization program in its history. On long-haul routes two Boeing 777-300ER aircraft replaced another two Airbus A340-300s during the reporting year. In the course of the previous year, the airline had incorporated six B777-300ERs into its fleet, also as replacements for A340-300s (see page 30, Balance 2017). On short-haul routes, SWISS put three Bombardier CS100 and seven CS300 aircraft into service, all of which replaced Avro RJ100 aircraft. On August 15, 2017, the airline withdrew the last of originally 21 Avro RJ100s from scheduled operations. Thanks to the latest technologies, the C Series aircraft set new standards with regard to comfort, efficiency and environmental compatibility. By early 2019, another two Bombardier CS100, 13 Bombardier CS300 and two B777-300ER aircraft are to be integrated into the fleet.

Austrian Airlines

During the reporting year, Austrian Airlines concluded replacing its Fokker fleet, a process begun in 2015, with 17 modern short-haul Embraer 195 aircraft. By the end of December 2017, the last Fokker 100 left the fleet. The Embraer consumes about 18 percent less fuel per seat mile than the Fokker and is thus significantly more environmentally friendly. In addition, in 2017 Austrian Airlines took over five Airbus A320s from Air Berlin.

Eurowings

Eurowings is Europe's fastest-growing airline. The fleet has grown significantly compared with the previous year. Eurowings has become the market leader at the four German locations Cologne/Bonn, Stuttgart, Hamburg and Düsseldorf. A contribution to this development came from fleet change-over from 23 Bombardier CRJ900 aircraft to the same number of Airbus A320s, which was successfully concluded in the first half of 2017.

Brussels Airlines

The Lufthansa Group has been the sole shareholder of Brussels Airlines since January 9, 2017. The Belgian airline was assigned to the Eurowings Group business segment (see page 5). At the end of October 2017, Brussels Airlines decommissioned its last Avro RJ100. As a result, the fleet consists only of Airbus A330-300, A330-200, A320-200 and A319-100 aircraft.

Lufthansa Cargo

At the end of 2017, Lufthansa Cargo operated five Boeing 777F freight aircraft. This aircraft is considered the quietest and most fuel-efficient freighter in its class and is characterized by a high level of reliability and a long range. The fleet also includes 12 Boeing MD-11F aircraft.

LUFTHANSA AVIATION TRAINING

The flying school of Lufthansa Aviation Training in Phoenix, Arizona, is in the process of replacing its existing Bonanza fleet with single-engine Cirrus SR20 aircraft. It has a total of 25 of these propeller aircraft on order, the first six of which were delivered at the end of October 2017.

Moreover, since the end of 2017 a new A320neo full-flight simulator FT75 has been available for training sessions at the Lufthansa Aviation Training Center in Frankfurt that can be used both as an A320neo simulator with Pratt & Whitney engines and as an A320 simulator with CFM engines. The FT75 is the 16th simulator of the Airbus A320 family operated by Lufthansa Aviation Training. Six of these are located in Frankfurt, and two each in Munich, Berlin, Essen, Vienna and Zurich.

THE LUFTHANSA GROUP FLEET AS OF DECEMBER 31, 2017
(changes compared to 2016)

	In possession [1]				In operation [2]			
	Number		Age		Number		Age	
Lufthansa (including regional partners)	357	(+7)	10.9	(+0.8)	337	(+7)	10.9	(+0.7)
Eurowings (including Germanwings)	136	(+58)	10.4	(–0.9)	87	(–9)	10.2	(-0.4)
SWISS (including Edelweiss Air)	91	(+2)	11.0	(–1.3)	91	(+2)	11.0	(-1.3)
Austrian Airlines	83	(+2)	13.7	(–1.2)	83	(+2)	13.7	(-1.2)
Brussels Airlines (new from financial year 2017)	44	(+44)	15.3	–	44	(+44)	15.3	–
Lufthansa Cargo	17	(–2)	14.1	(+0.6)	17	(±0)	14.1	(+1.0)
Lufthansa Group fleet	**728**	**(+111)**	**11.4**	**(+0.1)**	**659**	**(+46)**	**11.5**	**(+0.2)**

1 Aircraft in the possession of the Lufthansa Group
2 Operated by companies of the Lufthansa Group

SUSTAINABLE INNOVATION, RESEARCH AND DEVELOPMENT

The Lufthansa Group and its Group companies continuously work both individually and across business segment lines on product innovations as well as research and development projects. These activities are in part centrally coordinated. However, the largest part of these projects is managed decentrally within the business segments, given the differences in emphasis of activities (see page 42 ff., Annual Report 2017).

In the digital age, the ability to innovate is more than ever a fundamental prerequisite for economic success. For a company such as the Lufthansa Group, this means thinking and acting strategically in a highly competitive environment. Therefore, digitalization is the central innovation and future-oriented topic in all of the Group's business segments. It allows the development of new business models, solutions and products. For example, all Lufthansa Group companies are thus able to redesign their customer interfaces and better address differentiated customer needs. The aviation group actively takes advantage of the opportunities offered by digitalization in order to create added value for customers and to support the quality strategy. This also includes SMILE, the initiative for the development of increasingly personalized offers, which are guided by flight status, locations, interests and needs (see page 16, Sustainable travel). The same applies to the open and neutral platform AVIATAR, developed by Lufthansa Technik, offering digital MRO solutions (see page 9, Balance 2017).

Beyond that, Lufthansa Technik is the most important generator of ideas within the Lufthansa Group. The world's leading provider of technical aviation services saves about 40 million euros per year by applying creative improvement suggestions from employees working in hangars, workshops and offices. The company aims to take even greater advantage of this potential by means of "my ideas", the new idea management, which was implemented during the reporting year.

In order to identify and manage opportunities resulting from industry changes and digitalization trends in an even more structured manner, the Lufthansa Group set up an Innovation Hub in Berlin in 2014. Its goal is to further develop the Group's pronounced innovative culture and capabilities, and to take advantage of opportunities in focused ways.

"The sustainable strengthening of the ability to innovate is of central importance for the Lufthansa Group. Digitalization is the key to a successful future in this context.

Dr. Christian Langer
Head of Digital Strategy, Innovation and Transformation, Lufthansa Group

The Lufthansa Group annually confers the Innovator Awards for outstanding innovation projects.

Lufthansa tested a humanoid robot equipped with artificial intelligence for the first time.

Another established part of the Group-wide culture of innovation is the Innovator Award. This internal honoring for preeminent innovation projects, which is given once a year in different categories, supports the development of new ideas and promotes the spirit of innovation within the Lufthansa Group. Since the launch of the Innovator Awards in 2014, more than 500 projects have been submitted; 128 during the reporting year alone.

Moreover, since 2014 projects of different Group companies can receive support from an internal innovation fund. The largest share of innovations is related to the digitalization environment, followed by those that are dedicated to new business model approaches.

In January 2017 at Frankfurt Airport, the first Lufthansa Digital Aviation Forum took place, with the goal of facilitating exchanges on topics, trends and questions concerning the advancing digitalization in everyday (travel) situations.

In addition, with the format “FlyingLab” the Lufthansa Group has created an open innovation platform. On selected Lufthansa flights, passengers have the opportunity to experience innovative products and services on board first-hand, test them and give feedback. In 2017, four “FlyingLabs” took place. For example, on March 9, 2017 on the way to the world’s largest digital conference, “South by Southwest” (SXSW) in Austin, eight speakers gave insights into digitalization topics.

To secure its worldwide pioneering role in the area of digitalization and innovation within the aviation industry, the Lufthansa Group 2018 provides 20 million euros from the new Lufthansa Digital Fund (LDF) for digital business models as well as technology and venture capital projects. The goal is to be able to scale plans and projects more quickly in this way, which often go beyond the existing structures in the Lufthansa business segments. Thus, the number of successful digital business models can be increased significantly.

The Lufthansa Group also cooperates with aircraft manufacturers, airports, fuel producers and scientific organizations in order to advance innovation on the basis of sound data and to continuously improve its own environmental commitment. For more than 25 years, a fixed component in this context has been the commitment to climate research, with which the Group makes an important contribution to improve climate models and weather forecasts (see page 51, Balance 2017). During the reporting year, the Lufthansa Group operated three aircraft equipped with specialized measuring instruments that record data concerning trace atmospheric substances and cloud particles on a global basis. The data captured are read out after each landing, processed and analyzed by research institutions.

Key points on

CLIMATE & ENVIRONMENT

02

40 _ ENVIRONMENTAL MANAGEMENT
43 _ FUEL CONSUMPTION AND EMISSIONS
54 _ ENERGY AND RESOURCE MANAGEMENT
57 _ ACTIVE NOISE ABATEMENT

Global aviation is a growth industry and for the foreseeable future, it will require the use of fossil fuels. The primary environmental impacts of flight operations are therefore primarily climate effects due to the CO_2 emissions produced by burning kerosene and the noise caused by aircraft taking off and landing. In addition, upstream and downstream activities consume resources such as energy and water, and generate waste materials.

Against this background, climate and environmental responsibility are key concerns for the Lufthansa Group. The Company has been committed to limiting the environmental effects of its business activities for many years. This approach also has an economic motivation as both the consumption of fuel and the purchase of CO_2 certificates and noise-related fees generate costs. In line with the consideration of materiality, the Lufthansa Group concentrates its commitment above all on the core business of the "product of flying". Central action areas are the reduction of emissions, active noise abatement, energy and resource management as well as commitment to research and the implementation of environmental management systems according to ISO 14001 or EMAS (European Eco-Management and Audit Scheme).

The Lufthansa Group aspires to conducting business in sustainable and responsible ways in all its business segments. The Company's goal is to meet increasing mobility needs with environmentally compatible products and to increase the eco-efficiency of flight operations on a continuous basis.

ENVIRONMENTAL MANAGEMENT

As early as 1996 the Lufthansa Group firmly anchored rules concerning environmental care in Environmental Guidelines. In 2008, the Executive Board approved the strategic environmental program valid until 2020. It establishes the continuous expansion of the environmental management systems in the Group companies as well as significant action areas concerning fuel efficiency and climate protection, active noise abatement, and energy and resource management. The implementation of the environmental strategy thus unfurls its effects in all areas of the Lufthansa Group – from operative activities and technical maintenance to procurement, facility management and administration.

The Group was intensively concerned with further developing its environmental strategy in 2017: an interdisciplinary working group has already defined the significant action areas of the Lufthansa Group. In the next step the experts involved are to define the target values and target contributions of the individual business segments, and assign the related measures to be taken. In this context, further control parameters are to be implemented at the Group level if possible and environmental care is to be interlinked even more strongly with Group strategy. Concurrently, the department Group Environmental Issues switched the existing environmental database to a more efficient and more flexible system during the reporting year. The environmental experts intend to further expand this database in 2018 to be even better able to meet increasing reporting requirements in addition to documentation and control needs.

The Lufthansa Group links entrepreneurial risks related to climate change and noise emissions into multidisciplinary, Group-wide risk management processes. They are also summarized in a risk chart that is updated regularly. The Group steers the environment-related opportunities and risks by means of the Environmental Strategy 2020, environmental programs and the environmental management systems.

With regard to climate and environmental responsibility, the companies of the Lufthansa Group take their bearings from voluntary external guidelines and participate in various sustainability initiatives. The resulting obligations in large part exceed legal requirements.

The department Environmental Issues reports to the Chairman of the Executive Board and CEO, and is responsible for the Lufthansa Group's definition, coordination and implementation of Group-wide goals and measures with environmental relevance. In addition, all larger subsidiaries have their own environmental departments, an environmental commissioner or coordinator. The environmental commissioners and coordinators meet at least once a year at the Group-wide Environmental Forum to coordinate strategies, measures and processes, and to exchange experiences. In addition, new or planned legal requirements and their effect on the Lufthansa Group are discussed at the forum.

Impression of the Lufthansa Group's Environmental Forum 2017.

Environmental management systems

To support the systematic control and continuous optimization of environmentally relevant processes, the Lufthansa Group steadily advances the implementation of environmental management systems according to ISO 14001 or EMAS at the Group companies. This is an overview of the current situation:

The Group's pioneer is **Lufthansa CityLine** with its long-standing experience in environmental protection: in 1999, it became the first airline worldwide to launch a professional environmental management system and pass the most rigorous European certification system, EMAS (Eco-Management and Audit Scheme). Since then, the program has been validated annually. Lufthansa CityLine is also certified according to the international environmental standard ISO 14001.

The **Lufthansa location Munich** was validated according to EMAS and certified in accordance with ISO 14001 for the first time in January 2018. After this successful EMAS validation in Munich, the airline is considering to extend the validated and certified environmental management system to other locations.

Lufthansa Cargo has been certified at its Frankfurt location since 2008 according to the environmental management standard ISO 14001 and worldwide since the end of 2015. The worldwide recertification took place in 2017, for the first time in accordance with the more stringent requirements of the revised standard. The latter include the detailed compilation of environmentally relevant risks and opportunities as well as a materiality analysis and a life-cycle evaluation including supplier management. After the certificate's validity had been extended to Jettainer GmbH, it was successfully widened to include another subsidiary, time:matters GmbH.

Lufthansa Technik has been certified according to ISO 14001 since 1999. The MRO specialist has also operated a job safety management program validated in accordance with the international specification OHSAS 18001 since 2008. In 2017, the certification of Lufthansa Technik Philippines in Manila was concluded successfully. Thus, of all non-European locations of the Lufthansa Technik Group, those in the Asia-Pacific region have been certified. The certifications at the locations Tulsa, Sun Valley and Puerto Rico will be continued in 2018, and the engine overhaul locations in Wroclaw (XEOS) and Jasionka (EME Aero), which are being set up, are already preparing for certification in 2019 and 2020, respectively.

"Our environmental management approach produces not only ecological but also economical improvements. Our employees strongly identify with the concept of sustainability and get involved enthusiastically with our environmental goals.

Peter Taubitz
Environmental Officer at Lufthansa Hub Munich, Deutsche Lufthansa AG

Opening workshop for the environmental coordinators to mark the introduction of an environmental management system at the Lufthansa location Munich.

The **LSG Group** has operated an in-house environmental management system since 2008, which comprises significant portions of core elements from ISO 14001. All locations worldwide that are fully owned by the airline caterer are covered by this system. The system's components are continuously supported by short-term and long-term goals, activities and programs. Furthermore, each region of the LSG Group has a Regional Environmental Manager (REM), who works together with the regional management team on implementing and monitoring the local environmental programs.

LZ-Catering is preparing the introduction of an environmental management system. The company is an "environmental partner" of the City of Hamburg and has been a member of Ökoprofit since 2010. In 2017, LZ-Catering introduced reusable cups at its Bartesse coffee shops to help reduce the quantity of waste. At a majority of its company restaurants LZ-Catering has offered at least one daily "CO_2-friendly" main course since July 2014. Individual special dishes and regionally-sourced ingredients complement the meal offers at the different restaurant locations.

On the basis of its strategic environmental program, the Lufthansa Group pursues the goal of establishing certified environmental management systems step by step at the large Group companies. The airlines SWISS (including Edelweiss Air), Air Dolomiti, Austrian Airlines, Eurowings and Brussels Airlines have currently not implemented certified environmental management systems.

FUEL CONSUMPTION AND EMISSIONS

The CO_2 emissions of civil aviation currently account for about 2.7 percent[1] of all CO_2 emissions caused by human activities, according to the International Energy Agency (IEA), and count among the industry's significant global environmental effects. Given that increasing demand for mobility is foreseeable, air transport and its related emissions will continue to increase in the future. The aviation industry has reacted to this development and in 2009 adopted the following goals with worldwide validity:

1. Fuel efficiency is to be increased by 1.5 percent per year by 2020.
2. From 2020, growth in civil aviation is to be realized in CO_2-neutral ways.
3. By 2050, the net-CO_2 emissions of civil aviation are to decline by 50 percent, compared with 2005.

The Lufthansa Group had a significant role in this approach and shares the industry's goals. The Company participated in numerous working groups of the International Air Transport Association (IATA), such as the Environmental Committee and the Industry Affairs Committee as well as the Board of Governors.

In addition, the Lufthansa Group has set its own goals to reduce its specific CO_2 emissions by 25 percent by 2020, compared with 2006 values. It achieved 64 percent of this goal by the end of 2017. Against the background of responsible mobility, fuel efficiency and climate protection in flight operations are fundamental for the Group, both from an economic and an ecological perspective. In this way, effects on environment and society can be reduced as well as operational costs – important preconditions for ensuring the Company's long-term success. Simultaneously, the Lufthansa Group fulfills the (transparency) requirements of its stakeholders and meets national, regional and industry-specific energy and emissions regulations.

All projects concerning the subject of improving fuel efficiency are managed by the department Flight Operations Efficiency & Innovation. The experts' task is to identify, develop and implement concepts, projects and processes in flight operations – with the goal of continuously improving the Lufthansa Group's fuel efficiency (see page 48, interview Jörg Pikolin). In addition to the projects and processes steered by this department, the modernization of the fleet is a fundamental building block within the concept of resource conservation (see page 32 ff., Fleet management).

Specific fuel consumption: A new efficiency record

The Lufthansa Group established a new efficiency record in the reporting year: in 2017, the aircraft of the passenger fleets needed only 3.68 liters of kerosene on average to transport one passenger over a distance of 100 kilometers (2016: 3.85 l/100 pkm). This is an improvement of 4.5 percent compared with the previous year. It is particularly welcome that all passenger airlines within the Lufthansa Group improved their specific fuel consumption (see page 96). The most efficient Group airline was again SWISS with an average specific fuel consumption of a mere 3.19 liters per 100 passenger kilometers – an improvement of 7.3 percent compared with 2016. The absolute fuel consumption, and thus the absolute CO_2 emissions of the Lufthansa Group, increased by 6.2 percent during the reporting year, compared with the preceding year. This increase is largely due to the expanded scope of consolidation following the complete acquisition of Brussels Airlines. This was contrasted by positive effects from the implementation of operative measures to reduce fuel consumption and further efficiency improvements due to the operation of new aircraft models.

3.68 l/ 100 pkm

EFFICIENCY INCREASE BY 4.5 PERCENT COMPARED WITH THE PREVIOUS YEAR

1 Source: International Energy Agency (IEA) 2017, 2015 values

PASSENGER TRANSPORTATION 2017

SPECIFIC FUEL CONSUMPTION AND SPECIFIC CO_2 EMISSIONS

- Values for specific fuel consumption in liters per 100 passenger kilometers (l/100 pkm)
- Values for specific CO_2 emissions in kilograms per 100 passenger kilometers (kg/100 pkm)

LUFTHANSA GROUP

	Total	Long-	Medium-	Short-haul
	3.68	3.36	3.88	5.52
	9.27	8.46	9.78	13.91

Share of fuel consumption by traffic areas[1]

Long-haul	Medium-haul	Short-haul
60 %	28 %	13 %

LUFTHANSA

	3.76	3.53	3.83	6.27
	9.46	8.89	9.66	15.79

68 %	22 %	10 %

SWISS

	3.19	2.91	3.74	5.33
	8.04	7.33	9.42	13.44

67 %	26 %	7 %

AUSTRIAN AIRLINES

	3.83	3.04	4.15	5.58
	9.64	7.65	10.46	14.07

39 %	38 %	23 %

1 Definitions of traffic areas: Long-haul more than 3,000 km | Medium-haul 800 to 3,000 km | Short-haul under 800 km 2 All scheduled and charter flights operated by Lufthansa (including Lufthansa CityLine und Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings (including Germanwings), Brussels Airlines and Lufthansa Cargo. Excluding services of third parties as the Company cannot influence their performance.

EUROWINGS

	Total	Long-	Medium-	Short-haul
	4.18	–	3.85	4.55
	10.53	–	9.71	11.47

BRUSSELS AIRLINES

	3.62	3.19	4.05	–
	9.13	8.05	10.21	–

Share of fuel consumption by traffic areas[1]

DECOUPLING OF TRANSPORT PERFORMANCE AND FUEL CONSUMPTION[2] SINCE 1991

Changes compared to 1991 in percent, values for the fleet of the Lufthansa Group

For further environmental ratios refer to the chapter Service & Information, page 96 ff.

CO_2 emissions according to GHG Protocol

The Lufthansa Group determines its CO_2 emissions on the basis of the Greenhouse Gas Protocol (GHG Protocol), which divides emissions into three main categories (scopes). All direct emissions from flight operations, which are shown in the illustration as "Direct and indirect CO_2 emissions of the Lufthansa Group", were determined and verified on behalf of the aviation group in accordance with the European emissions trading scheme. Beyond that, for some years the Group has also recorded indirect emissions caused by its business activities. All recorded and calculated direct and indirect CO_2 emissions were verified externally (see page 99, Verification statement). The so-called CO_2 footprint helps the Lufthansa Group to identify and evaluate its significant environmental effects with greater precision, pursuing the goal of developing more effective options for reduction as the next step.

Direct and indirect CO_2 emissions of the Lufthansa Group 2017

SCOPE 1 [1]

72.6 %

28,949,145 tonnes

Direct CO_2 emissions from the Lufthansa Group's flight operations and ground traffic of own vehicles as well as own energy-generating facilities.

SCOPE 2

0.6 %

256,232 tonnes

Indirect CO_2 emissions of electricity and energy purchases for ground operations, including catering and maintenance.

SCOPE 3

26.8 %

10,678,859 tonnes

Further indirect CO_2 emissions along the supply chain and from purchased services, here essentially the emissions from the kerosene supply chain and those related to the manufacturing of aircraft and engines.

1 Audited with the result High Assurance. Without Scope 1 – emissions of the aircraft fleet of Brussels Airlines NV/SA. These were audited by another auditor with the result Limited Assurance and are therefore not shown in this depiction.

Four pillars for climate protection

The aviation industry intends to reach its goals concerning fuel efficiency and reduction of CO_2 emissions by pooling different measures implemented by different players (manufacturers, airports, air traffic control, airlines, politics). These were classed at the IATA assembly in 2007 in the industry's four-pillar climate protection strategy (see overview below). This strategy also forms the basis for the Lufthansa Group's fuel-efficiency activities. Furthermore, the Group draws orientation in the area of climate and environmental responsibility from the environmental principles of the UN Global Compact and the Sustainable Development Goals of the United Nations (see page 25).

Lufthansa was the launch customer of the Airbus A320neo, which flies more efficiently and quietly than preceding models.

Pillar 1: Technological progress

The most important lever for reducing CO_2 emissions from flight operations is to invest continuously in modern and especially fuel-efficient aircraft and engine technologies (see page 32 ff., Fleet management). The airlines within the Lufthansa Group took delivery of 29 new aircraft in the course of the reporting year. For example, five further Airbus A350-900s were put into service, whose CO_2 emissions are about 25 percent lower than those of comparable types of aircraft.

Moreover, the Lufthansa Group has participated for a number of years in researching and testing alternative fuels in flight operations. This includes the research project "airegEM", which analyzed the properties of biofuels with support from Germany's Federal Ministry for Economic Affairs and Energy. Before the aircraft of the Group airlines can use alternative fuels, a number of basic requirements must be fulfilled. They include above all reliable quality specifications, sustainability in production and along the supply chain, and economic efficiency, of course.

Four pillars for climate protection

1. Technological progress	2. Improved infrastructure	3. Operational measures	4. Economic measures
Innovation in aircraft and engine technologies Alternative fuels	Better use of airspace Needs-based airport infrastructures	Efficient aircraft sizes Optimal flight routes and speeds Optimized processes on the ground	A global, sensibly designed, market-based system for reducing emissions to complement the other three pillars

Four questions for
JÖRG PIKOLIN

Head of Flight Operations Efficiency &
Innovation Group Airlines

YOU AND YOUR TEAM ARE RESPONSIBLE FOR "OPERATIONS EFFICIENCY". WHAT DOES THIS IMPLY?

For us, "Operations Efficiency" means further developing the optimization process, which until recently was purely focused on fuel burn. Of course, flying fuel-efficiently will remain one of our primary goals. But in addition, we want to shift our focus from optimizing individual flights to the bigger picture, meaning we consider all resources used in context.

WHICH MEASURES ALLOW THE GREATEST FUEL SAVINGS?

We achieve the greatest savings by means of new aircraft technologies, such as those featured on the Airbus A320neo. We concentrate on those areas we can influence actively. Weight reduction remains an important measure to effectively reduce fuel consumption and we have already implemented many of these steps. In the future, our focus will be more and more on optimizing and shortening flight routings. Every mile flown less means lower fuel consumption and emissions as well as shorter flying times.

HOW IMPORTANT IS THE COOPERATION WITH OTHER DEPARTMENTS?

Cooperation is fundamentally important for us because other departments often implement measures independently. For this reason, we always develop our initiatives in cooperation with the departments concerned across the Lufthansa Group. Apart from developing solutions affecting fuel efficiency in the working group set up with the other Group airlines, we also work with Lufthansa Technik on innovation projects, for instance.

HOW IMPORTANT ARE TOPICS SUCH AS DIGITALIZATION AND INNOVATION FOR YOUR WORK?

Both are of central importance for us. Digitalization gives us access to data that were not available in digital formats in the past. It also allows us to expand classic post-flight analyses using methodologies such as "predictive analytics". For example, today we can estimate a flight's arrival time with much greater precision because we combine weather, airport and general traffic data as well as other data sets.

Innovations are important for meeting our goal of assuming a leading position in the airline industry, which also includes affirming a pole position in flight operations again and again. For this reason, we closely cooperate with universities and a number of centers of excellence within the Group. We also always keep an eye on developments in other industries. Every day we receive ideas from employees on how to improve small things or, sometimes, for doing things in a completely different way.

Pillar 2: Improved infrastructure

The largest climate protection project in European aviation is to establish a standardized airspace above Europe, the so-called Single European Sky (SES). In this way, airlines could burn 10 percent less fuel, according to Eurocontrol, the European air traffic control organization, and reduce their CO_2 emissions proportionally. In Europe, there are still about 61 air traffic control centers with responsibility for air safety in 28 different national systems, which means that aircraft can rarely follow an optimum route to their destinations.

The goal of SES is to manage air traffic flows substantially more efficiently than is currently the case. An important milestone on the path toward this goal is the standardization and modernization of the European aviation infrastructure. For this purpose, the European Commission set up the SESAR (Single European Sky ATM Research) program. SESAR is to develop, test and implement Europe-wide new technologies, procedures and standards that contribute to harmonizing and optimizing European air traffic management.

The Lufthansa Group is committed to SESAR with the clear expectation that measurable operational improvements in the area of air traffic management will turn into reality. The goal is to create direct advantages for customers and the environment, and to reduce the cost of air traffic control over the long-term.

The implementation of these technologies in everyday operations is coordinated under the roof of the industry consortium SESAR Deployment Manager (SDM). The Lufthansa Group is a member of this consortium and provides experts on site. Currently, the SDM coordinates 299 projects across Europe. The different airlines of the Lufthansa Group and Lufthansa Systems as an IT provider actively participate in the SESAR research and demonstration projects as well (see profile on the right).

In addition to the improved use of air space, the goal is to optimize conditions on the ground too. Here, more than anything it is airport infrastructure adapted to actual needs that allows efficient flight operations.

Another contribution to reducing environmental burden is provided by intelligent links between different modes of transport. The Lufthansa Group is also active in this area and develops intermodal transport concepts that systematically interconnect air, rail and road transport. The current offer includes connections to airports by high-speed train, modern long-distance bus and car sharing.

PROJECT PROFILE

PROJECT NAME:
AAL 2 (AUGMENTED APPROACHES TO LAND 2)

In the follow-up project of AAL (see pages 42 and 50, Balance 2017) experts are optimizing current navigation procedures in order to demonstrate more efficient and emissions-reduced approach procedures. In addition, they are working to test the usability of the Ground Based Augmentation System (GBAS) for approaches during low-visibility conditions. Furthermore, the use of the Continuous Descent Approach procedure is to keep approach traffic longer at higher altitudes and thus quieter. The design of the procedures that are to be implemented by January 2019 is already complete.

TOPIC AREA
SESAR (Single European Sky ATM Research) demonstration

FOUR-PILLAR STRATEGY
This project makes a contribution to the pillar "improved infrastructure" in particular, but also to the pillars "technological progress" and "operational measures".

PARTICIPATING EXPERTS
System partners from the aviation industry participate in this interdisciplinary project, including airlines, aircraft manufacturers and air traffic control. A total of more than 300 test flights with the aircraft types A320, B 737NG and B 747-8 are to take place.

GOAL
AAL 2 is to prove that modern satellite navigation in combination with advanced approach procedures produce economic and ecological advantages.

DURATION OF THE MEASURE
February 2018 to February 2020

PROJECT PROFILE

PROJECT NAME:
GLOBAL DISPATCH NETWORK (GDN)

The project Global Dispatch Network (GDN), including Mission Support, offers new planning options and principles that significantly reduce fuel consumption. New software allows the more efficient use of runways for takeoffs and landings as well as more flexible flight routings, among other options. It also helps pilots to react even more effectively to changing weather conditions in flight (see page 47, Balance 2015).

TOPIC AREA

Operations efficiency, evaluation and implementation of optimization measures in the flight operations of the Lufthansa Group airlines – the spectrum of approaches ranges from weight reductions, technical efficiency optimizations and efficiency-improving engine washes to optimizations of flight routings by means of the OMEGA tracks.

FOUR-PILLAR STRATEGY

This project makes a contribution to the pillar "operational measures".

PARTICIPATING EXPERTS

The operations efficiency departments of all Group airlines regularly exchange information. An additional partner is Lufthansa Technik for projects aiming at increasing technical efficiency.

GOAL

This project helps the Lufthansa Group to avoid 40,114 tonnes of CO_2 emissions in a sustainable manner.

DURATION OF THE MEASURE

This project ran from 2014 to 2017.

Pillar 3: Operational measures

Operational measures taken by the Lufthansa Group include the deployment of efficiently sized aircraft; the improved utilization, testing and introduction of new flight procedures; and the determination of optimum flight routes and flight speeds (see profile on the left). These are complemented by programs for long-term weight reductions, the increased use of flight operations data and software (see profile page 51) and more efficient processes on the ground that contribute to reducing kerosene consumption. Two examples are the IT systems OMEGA at Lufthansa and Socrates at SWISS, which support pilots with improved, digitally edited information (see page 44, Balance 2017). In addition, OMEGA's systematic analysis capabilities contribute to further increases in efficiency and safety.

Moreover, SWISS will provide the application PLATON (PrefLight AnalyTics On demaNd) on each personal device used by its cockpit crews. PLATON is an interactive operations efficiency briefing tool for pilots, which displays historical flight data such as fuel consumption, delays, distance to destination and detours as dashboards for a selected city pair. The goal is to give pilots decision-making support so that they can plan their flights optimally and carry them out efficiently.

Lufthansa Cargo has also developed a broad-ranging catalogue of measures aimed at reducing the CO_2 emissions of its freighter fleet. Thus, the logistics specialist has made it possible for its clients to reduce the specific CO_2 emissions of their shipments every year – cumulatively by 17.5 percent since 2005. For example, a shipment weighing 5 tonnes transported aboard a Lufthansa Cargo freighter from Frankfurt to New York caused emissions of 17.03 tonnes of CO_2 in 2005. By 2017, the freight airline had been able to reduce this quantity for the same weight and route by almost 3 tonnes to 14.05 tonnes of CO_2. With support from OMEGA, Lufthansa Cargo implemented further measures in the first year of use in order to again reduce CO_2 emissions per tonne transported; a cumulative effect of more than 10,000 tonnes of CO_2 per year.

After switching to more lightweight containers (see page 42, Balance 2017) Lufthansa Cargo is also testing the use of more lightweight pallets for loading freight. While a standard pallet currently in use weighs about 100 kilos, lightweight variants weigh about 20 to 30 kilos less. Considering a stock of about 18,000 pallets, a conversion would produce significant efficiency gains. Among other initiatives, six pallets from two manufacturers are being tested on flights between Budapest and Vienna. Another option for saving weight aboard freighters is opened up by SquAIR-timber materials, which are to replace the wooden boards used as loading devices with cardboard.

In the framework of the research project FAMOS, Lufthansa Technik – together with its partners Bremer Werk für Montagesysteme (bwm), Airbus Operations GmbH and the subcontractor Fraunhofer IFAM – is working to develop a highly automated system to apply low-drag micro-structured surfaces for commercial aircraft. The so-called riblets resemble the fine ribs on the scales of fast-swimming sharks and are therefore referred to as artificial sharkskin. Thanks to a reduction of air resistance, this innovative technology is expected to help conserve up to 1.5 percent of fuel and avoid a corresponding quantity of pollutants emitted.

In 2017, the company and its partners presented a directing system, which automatically coats the multifunctional surfaces of commercial aircraft with a low-drag "shark skin" structure. The riblet plates and patches were tested last year on the Lufthansa Airbus A330 "Cuxhaven", which is stationed in Munich. Currently, the insights gained are being analyzed by the system partners with the aim of reaching market maturity with this product in the near future.

Group-wide, the Company implemented a total of 34 projects aimed at fuel conservation in 2017, which lowered CO_2 emissions by about 64,400 tonnes over the long-term. The quantity of kerosene conserved amounted to 25.5 million liters – this corresponds to the fuel consumption of about 250 return flights between Munich and New York with an Airbus A350-900. The positive financial effect of the measures reached 7.7 million euros.

PROJECT PROFILE

PROJECT NAME:
FUEL ORDER MODEL

The project Fuel Order Model is to support pilots on the basis of comprehensive information and an improved user interface in calculating the optimum quantity of reserve fuel while taking safety and economic aspects into account. An important consideration is to make the empirical values available after a flight to other pilots for the benefit of their future fuel decisions.

TOPIC AREA

Innovation and digitalization – the spectrum of projects ranges from fuel quantity calculations and flight procedures to better capacity utilization at airports and in air space infrastructure to optimizations on fuselages and engines.

FOUR-PILLAR STRATEGY

This project makes a contribution to the pillar "operational measures".

PARTICIPATING EXPERTS

Experts from Flight Operations and Operations Control, the department responsible for planning flight routings and operative support, are active in this project. In addition, experts from Lufthansa Technik and the Ground Operations function are active in other projects.

GOAL

Reduced takeoff weights are to lower Lufthansa's CO_2 emissions by approximately 4,500 tonnes per year.

DURATION OF THE MEASURE

The Fuel Order Model is to be introduced step by step at the Group airlines from 2018.

Pillar 4: Economic measures

With the agreement on climate protection (CORSIA – Carbon Offsetting and Reduction Scheme for International Aviation), which was adopted in October 2016 in the context of the International Civil Aviation Organization (ICAO), growth-related CO_2 emissions in international civil aviation are to be compensated from 2020 by CO_2 savings achieved by climate protection projects. As a result, the Lufthansa Group will have to pay the corresponding CO_2 compensation costs from 2020 for increases in CO_2 emissions of included international flights within the aviation industry, should it not be possible to limit these CO_2 emissions appropriately. In the EU emissions trading system for civil aviation, CO_2 emissions have been steered and limited by trading certificates since 2012. The Lufthansa Group is covered by this system for all flights within Europe. These flights emitted about 7.6 million tonnes of CO_2, of which about 60 percent have to be covered by purchasing emissions certificates. Thus, the goal of CO_2-neutral growth has effectively been more than fulfilled within Europe.

Today, the Lufthansa Group already offers the majority of its customers the option of voluntary CO_2 compensation. The latter is provided through renowned agencies that apply the highest standards in selection and implementation (see page 67, Balance 2016). In 2017, many customers of the Group airlines again took advantage of the possibility of traveling in a CO_2-neutral way. The passengers of the Network Airlines Lufthansa, SWISS and Austrian Airlines as well as AirPlus customers compensated a total of 16,900 tonnes of carbon dioxide during the reporting year. As a result, more than 333,000 euros were donated to climate protection projects. To make even more passengers aware of the option of voluntary CO_2 compensation, the Lufthansa Group is planning to further optimize its corresponding Internet offer 2018/19.

Measures taken by the Network Airlines to reduce fuel consumption and thus also CO_2 emissions (selection)

Airline	Measure	Expected annual CO_2 savings in metric tonnes	Project duration/ implementation period
Lufthansa	• The Trent 500 engines of the aircraft type Airbus A340 are to be modified by the installation of optimized components.	34,062	2012 – 2020
	• The OMEGA software displays historical flight routings (so-called "tracks") in flight on pilots' electronic maps, allowing them to identify shortcuts early on and to plan more efficient approaches.	26,937	2015 – 2017
	• The Trent 700 engines of the aircraft type Airbus A330 are to be modified by the installation of optimized components.	13,227	2012 – 2019
SWISS	• Global Dispatch Network (GDN), including Mission Support, offers new planning options and policies that will reduce fuel burn substantially.	40,114	2014 – 2017
	• In the CFM56-5B engines of the aircraft type Airbus A320 the existing combustion chambers were replaced step by step with more fuel-efficient combustion chambers.	6,600	2014 – 2017
	• The analysis software SOCRATES (OMEGA at Lufthansa) allows the identification of different optimization potentials based on statistical analysis and their targeted implementation.	> 1,134	2016 – 2017
Austrian Airlines	• A weight saving is realized on the entire Boeing long-haul fleet with the introduction of Premium Economy Class seats.	2,100	2017 – 2018
	• An upgrade in the high-pressure turbine of the PW4060-3 engines in the B767-300ER fleet (improved clearance) reduces fuel consumption.	1,398	2015 – 2017
	• Print media on all Austrian Airlines flights were sustainably reduced.	622	2014 – 2017

ENERGY AND RESOURCE MANAGEMENT

It is part of the entrepreneurial DNA of the Lufthansa Group to keep air transport's effects on the environment as environmentally friendly as possible. The Group consistently applies this standard not only in flight operations, but also in its activities on the ground. The Group's corresponding guidelines and goals result from the strategic environmental program 2020, which was implemented in 2008 (see page 36, Balance 2015). Its 15 guidelines outline how the Lufthansa Group is to continuously optimize its energy and resource management, among other considerations, by 2020. This approach also takes into consideration energy-saving and resource-conserving aspects related to planning, modernizing and constructing buildings used by the Lufthansa Group. Input for optimizing buildings with regard to energy consumption is above all provided by the results of energy audits in accordance with the EU Energy Efficiency Directive (see page 45, Balance 2017).

To generate sustainable potentials for the sparing use of electricity and water, and to develop suitable solutions, is as important for the Lufthansa Group as its efforts to optimize waste management in catering. Within the new matrix organization, the aviation group therefore intensifies the cooperation of its subsidiaries in the area of energy management with the goal of generating synergies and deepening exchanges on best-practice cases. Group-wide monitoring makes it possible to implement energy-saving measures in an exacting manner and to obtain an overview of savings potentials. Against this backdrop, since March 2017 Lufthansa at its Frankfurt location has participated in the Business Energy Efficiency Network of energy provider Mainova.

For energy-intensive service companies Lufthansa Technik and LSG Group, the topic of energy management has a particularly high significance. Therefore, these companies use their own concepts and systems that are geared to their particularities and business activities.

For Lufthansa Technik, specific environmental protection solutions for customers and appropriate measures concerning its own work processes and locations are of central importance. The company operates a certified environmental management system (see page 41). A proprietary building standard with company-wide application helps the leading provider of MRO services (Maintenance, Repair & Overhaul) to increase the energy efficiency of its locations worldwide. Moreover, the Lufthansa Technik Group has launched a carbon-save program. Its goal is to lower the company's CO_2 emissions by 30 percent by 2018 when compared with those of 2012. At the end of 2017, more than 70 percent of this goal had already been achieved.

In recent years, the LSG Group has launched numerous programs aimed at conserving energy and water, and continued these during the reporting year. For 2018 it also set itself the goal to increase its recycling rate – waste per meal in grams – in a measurable manner. In addition, the catering specialist checks the key performance indicators (KPI) concerning energy consumption and waste quantities every year, and defined new KPIs per region for the period 2017 to 2020 (see page 46, Balance 2017). The LSG Group works with its own environmental management system that follows ISO 14001 (see page 42). Regional Environmental Managers (REM) responsible for individual areas implement environmental programs together with the regional management teams and also accompany monitoring. Further components of this process are employee training and local workshops on the subject of sustainability. In addition, the LSG Group is a member of "LEEN 100" (Learning Energy Efficiency Network), which was jointly initiated by the City of Frankfurt and business consultancy Arqum with the goal of improving CO_2 values in the Rhine-Main area.

Waste and recycling management

Permanently reducing waste quantities on board or increasing its recycling ratio are important considerations for the Lufthansa Group's waste management. Beyond legal requirements, the internal initiative "Flygreener" contributes to reaching this goal Group-wide. Its objective is to help reduce waste volumes continuously, especially in flight operations, and to improve the related processes on board. In recent years the aviation group has implemented numerous measures on this basis.

Specially trained flight attendants act as "Ambassadors on Board" and support crews with their know-how on how to recycle more effectively and cut waste quantities on board. Furthermore, the Company regularly makes its flying personnel more aware of this issue by setting up information stands. Over the mid-term, practice-related training, such as web-based courses for existing employees are planned. Moreover, close cooperation between the LSG Group and the Lufthansa Group's Network Airlines create synergies.

During the reporting year, Lufthansa and LSG Group employees again initiated a so-called empty-out campaign. This time, they analyzed the waste material from 15 long-haul and 20 short-haul flights in Munich and Frankfurt. Their objective was to assess progress in reducing non-recyclable waste at the Munich hub and to evaluate the potential of recyclable materials at the Frankfurt hub. Furthermore, in Frankfurt the complete load of service items from seven long-haul aircraft was sorted and analyzed to find out if there might be overcapacities in beverages on board and how these can be avoided. In addition, a project group was set up in 2018 with the task of developing a specialized recycling trolley aimed at establishing alternative options for discarding liquids.

The fully electrified catering lift truck "eLift" is operated by the LSG Group in Frankfurt.

E-mobility projects at the Lufthansa Group

Fuel-efficient and quiet aircraft are the central, but not the only regulating possibilities that can be used to make air transport more environmentally compatible. On the ground, there are also numerous opportunities, in particular in ground handling processes as well as taxiing and towing processes of aircraft. At Frankfurt Airport, the Lufthansa Group places an emphasis on advancing projects aimed at reducing the consumption of gasoline or diesel related to ground traffic. Switching individual vehicle types step-by-step to electric propulsion technologies is the ambitious goal of the initiative E-PORT AN at this location. In addition to the Lufthansa Group, Fraport AG, the State of Hesse and the Rhine-Main Model Electromobility Region are committed to this project. The partners' investments in these future-oriented electromobility projects are supported by Germany's Federal Ministry for Transport and Digital Infrastructure with an amount of several million euros. The initiative is scientifically accompanied by the Technical University Darmstadt and the Technical University Berlin.

In this way, the LSG Group developed the fully electrified catering truck "eLift" in close cooperation with external partners, whose operation at the Frankfurt hub causes no CO_2 emissions and significantly reduces noise too. The individual components

In 2018, Lufthansa LEOS took delivery of the second “eTug” in Frankfurt.

of the catering lift truck of the future, such as the truck’s chassis or the box body can be controlled independently of each other. Another particularity is the fully electrified bridge mechanism that allows the front platform to be shifted. The “eLift” does not differ from conventional lift trucks in the vehicle’s technical and operational characteristics. The LSG Group integrated the “eLift” into everyday operations in the third quarter of 2017.

The “eTug” by Swedish manufacturer Kalmar Motor AB is the first such vehicle of its kind worldwide and has been operated by Lufthansa LEOS since 2016. Its operation allows the avoidance of up to 75 percent of emissions when compared to a conventional, diesel-powered aircraft tug. It is in particular suited to environmentally friendly maintenance and positioning tows of large passenger aircraft such as the Airbus A380 or Boeing 747, and is capable of moving aircraft with a maximum takeoff weight of 600 tonnes. A second vehicle has been in operation since February 2018. In its construction, smaller improvement potentials were taken into account that had been identified in the context of operational experience with the first “eTug”. The electric vehicle with four-wheel drive and steering is supplied with energy from a lithium-ion battery and charged externally from the electricity grid. If necessary, the batteries can also be charged during operation by means of an integrated diesel engine, the Range Extender. The diesel power unit thus fulfills merely a back-up task.

The TaxiBot aircraft tug, which was further developed at Lufthansa LEOS together with the manufacturer in the context of the initiative for more electromobility at Frankfurt, was tested intensively under operational conditions over the past years and evaluated concerning its operational readiness. While the vehicle is operationally ready, the commercial concept is not viable – one significant reason among others is the short duration of taxiing in Frankfurt. Therefore, the decision was made not to continue the TaxiBot project at Lufthansa under the current framework of conditions.

ACTIVE NOISE ABATEMENT

Operating aircraft causes noise, especially during takeoffs and landings. As a result, it is mostly people living in areas surrounding airports who are affected by aircraft noise. At higher altitudes, such as during cruising flight, aircraft noise is without consequence. The noise-related effects of the Lufthansa Group's aircraft operations mostly affect hub locations.

The Lufthansa Group supports numerous activities and measures over the long-term in order to decrease aircraft noise perceptibly. The primary goal is to sustainably lower noise at the source and to develop optimized flying procedures in cooperation with system partners. In addition, the activities concerning noise protection also have an economic component: by flying quiet aircraft, the Group may prevent possible restrictions on operations.

Therefore, the Lufthansa Group has been working with determination on operating the quietest aircraft possible and on making its existing fleet even quieter. These efforts have been successful: in 2017, 99.5 percent – and thus almost the entire operative Group fleet – fulfilled or exceeded the strict minus-10-decibel criterium of the ICAO Chapter 4 standard (see overview page 114). The aircraft noise experts from the Group's different departments are closely connected within a network. In addition, they are active in aircraft noise commissions, dialogue forums and research projects, which in some cases they initiated and have coordinated. For example, this includes participation in test projects under the umbrella of SESAR (Single European Sky ATM Research, see page 49).

The Lufthansa Group's commitment to active noise abatement comprises five dimensions (see graphic below). In addition to this issue of Balance, the Lufthansa Group also published this approach in its Annual Report 2017 as part of the combined non-financial report (see info box page 24).

Active noise abatement

1. Investments in quieter aircraft	2. Noise-reducing technologies for the existing fleet	3. Participation in noise research	4. Optimization of approach and departure procedures	5. Dialogue with residents near airports and other stakeholders
Introduction of the latest aircraft such as the Airbus A320neo and Airbus A350-900 Retirement of older models	Retrofitting of noise-reducing vortex generators to the existing fleet	Continuous collaboration and exchange with partners from research and industry Development and analysis of new noise-reduction measures	Cooperation with system partners Development and testing of new methods Use of new navigation technology	Continuous exchanges with residents as in the Airport and Region Forum Active participation to aircraft noise commissions

Noise contours compared
A350-900 vs. A340-300/600

Compared to previous models, the Airbus A350-900 shows a 40–50 percent lower noise contour. The 85 dB(A) maximum noise level contours are shown for a takeoff with Lufthansa standard takeoff procedures and maximum takeoff weight (MTOW).
By comparison, a maximum noise level of 85 dB(A) is produced by a truck passing at a distance of five meters (16 feet) in city traffic.

40-50 %
LOWER NOISE CONTOUR

Source: Airbus, information as of: 11/2016

1. Investments in quieter aircraft
The most effective lever for reducing aircraft noise is fleet modernization. In this area the Lufthansa Group cooperates closely with aircraft manufacturers and actively influences the shaping of specifications and the technical status of new aircraft (see page 10 ff., interview Jörg Hennemann). In 2017, the aviation group put 29 new aircraft into service, including five further Airbus A320neo and ten Bombardier C Series aircraft, both of which are equipped with modern engines (see page 32 ff., Fleet management). The same applies to the Airbus A350-900, which counts among the most modern and environmentally friendly long-haul aircraft, and flies significantly more quietly than comparable types of aircraft (see illustration on the left). In return, a total of 36 older aircraft left the Group fleet.

2. Noise-reducing technologies for the existing fleet
In addition to modernization measures, retrofitting the existing fleet can also produce measurable reductions of aircraft noise. At the beginning of 2014, Lufthansa was the first airline worldwide to start operations with an Airbus A320 equipped with noise-reducing vortex generators, thus setting an industry standard (see page 49, Balance 2017). Aircraft with vortex generators are up to 4 decibels quieter during the approach phase. In the meantime, the Group has retrofitted all aircraft of the A320 family operated by Lufthansa and SWISS with these vortex generators. The retrofit of Austrian Airlines' A320 family is expected to be completed in 2019.

Retrofitting aircraft with vortex generators is another example that shows how economy and ecology go hand in hand for many measures. With this project, the Lufthansa Group makes progress in active noise abatement and in particular lessens the noise burden on people close to airports. On the other hand, there is a positive economic effect as noise-related fees at Frankfurt Airport are reduced in the context of calculating noise charges for aircraft equipped with vortex generators compared with charges for comparable aircraft without these parts, for example. In an environment with intensified competition, the economic efficiency of such measures will gain increasing importance.

3. Participation in noise research

For many years, the Lufthansa Group has been committed to noise research via projects such as MODAL (Models and Data for the Development of Active Noise Abatement Measures in Aviation), which help create the foundations for successful active noise protection.

In 2017, the project "EffFlug" (Efficiency increases in flight operations) was added. Its goal is to analyze efficiency measures more precisely with regard to their noise reduction potential compared with previous solutions. To this end, the existing evaluation methods are to be expanded and deepened. Digitalization makes it possible to analyze flight operations data even more intensively and to link them with intelligent analytic tools. The prerequisite for the participation in "EffFlug" is a high degree of expert knowledge and cockpit experience. In this project, the Lufthansa Group closely cooperates with the German Aerospace Center (DLR), Fraport AG and Flughafen München GmbH.

Continuous research and development work, in particular by manufacturers, produce quieter aircraft and engine generations as well as desired optimizations on the aircraft in the existing fleet. Therefore, it is of great importance for the Lufthansa Group to help shape this steady cycle of intensive research as well as new technologies and products in order to achieve further efficiency improvements in aircraft and engines.

4. Optimization of approach and departure procedures

Optimizing flight procedures and flight routings also contributes to noise reductions. The Lufthansa Group is active in this area in numerous ways by cooperating with international partners such as Eurocontrol. For example, in July 2017 Deutsche Flugsicherung (DFS, air traffic control), Lufthansa and Fraport successfully tested and implemented new navigation technology on the so-called southern circumnavigation in Frankfurt in the context of SESAR. The newly used Radius-to-Fix (RF) functionality allows flying highly-precise circular-path segments with fixed radius and fixed origin at a quality level that so far is unique in Germany. For people living in the region, this is likely to produce correspondingly positive effects on noise burdens. Operations will be accompanied by comprehensive monitoring in cooperation between DFS and the Environment and Neighborhood House. The outlook is that the DFS intends to use the procedure on other departure routes from Frankfurt as well.

5. Dialogue with residents near airports and other stakeholders

Since 2001, the Lufthansa Group has actively and continuously participated in measurement packages aimed at noise abatement in the framework of dialogue forums, in Frankfurt and Vienna among other locations. One example is the "Alliance for Noise Abatement" in Frankfurt, in which the state government of Hesse, Fraport AG, Deutsche Lufthansa AG, the Airport and Region Forum (FFR), Deutsche Flugsicherung (DFS) and the aviation association BARIG participate. Moreover, the Lufthansa Group also works actively in some of the German aircraft noise commissions stipulated by Germany's Civil Aviation Act.

In January 2018, the FFR presented 17 additional measures to reduce the noise burden in the areas surrounding Frankfurt Airport or to enable an improved political and legal framework for the expedited implementation of measures. Those involved took the first steps in this context in 2017. The package of measures "Active Noise Abatement" builds on the 12 noise protection measures that were implemented in the past in standard operations, and also opens up new perspectives, such as the precision navigation system.

Simultaneously, Hesse's Ministry for Economic Affairs and Transport, the Frankfurt Aircraft Noise Commission, Lufthansa, Condor, BARIG, Fraport and the FFR agreed on a voluntary upper noise limit at Frankfurt Airport. This agreement gives the airlines an additional incentive for flying even more quietly: doing so is the only way to increase the number of their aircraft movements. The Lufthansa Group welcomes such a reliable, clear and long-term regulatory framework that creates investment and planning security for future growth and fleet decisions. In May 2016, the state of Hesse and the aviation industry had already sealed the voluntary introduction of noise breaks in an "Alliance for Noise Breaks" (see page 60, Balance 2016, and page 55, Balance 2015).

Key points on

EMPLOYEES & SOCIETY

03

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Working at the Lufthansa Group has many facets. But the individual is always at the center of attention. The employees' know-how and diverse talents are a central variable that directly influences the Company's entrepreneurial success. Therefore, the Group's goal is to establish itself as an attractive employer over the long-term while meeting its social responsibility. The Lufthansa Group places the greatest emphasis on offering its employees an attractive working environment with transparent structures and processes in order to meet future requirements and strengthen the innovative forces within the Company.

Custom-fit offers for continuing education, a realistic framework of conditions to promote balance between working and private life, a comprehensive approach to equal opportunity and diversity in all its dimensions, and intensive support for talent – all of these are significant action areas for the aviation company to meet its self-defined benchmark for treating employees fairly and as partners. By using modern information technology the Group takes into account the fact that the working world is global, digital and networked. In addition, the Group meets its responsibilities for its employees by means of its tried-and-tested health and safety policies.

With regard to society as a whole, the Lufthansa Group also acts responsibly. As a corporate citizen it engages in a dynamic process supporting social issues and has firmly anchored specific employee involvement in its HR strategy.

DIVERSITY AND EQUAL OPPORTUNITIES

For the Lufthansa Group, diversity and equal opportunities are central elements of the Company's strategic alignment. They are indispensable in positioning the Group as an attractive employer in a global and inter-generational setting – today and in the future. Diversity in all its dimensions is also a fundamental prerequisite for being able to innovate and change, and to secure a leading competitive position over the long-term.

Systematic diversity and the appreciation of all employees associated with it make an organization more agile, flexible and creative. Diversity management incorporates the life situations of all employees actively into entrepreneurial conduct and makes a significant contribution to being better able to discern the needs of stakeholders and optimizing services. Against this background, the hallmark of the Lufthansa Group's corporate culture is pronounced diversity, which makes the Company more open for different values, attitudes and life situations at the same time. For the aviation company, diversity is a decisive foundation of its modern service philosophy and customer centricity. In addition, diversity helps to minimize risks, as in mixed teams different points of view are contributed to development and decision-making processes.

Today, the Lufthansa Group already represents the central idea of diversity: the 147 nationalities who are represented worldwide throughout different age levels among managers and employees within the Group are visible proof of applied diversity. These employees contribute an enormous variety of points of view and competencies to the Company. Among other advantages, this perspective results in a differentiated understanding of needs, which, in turn, makes a significant contribution to customer-centric development of products and services. This is especially important against the background of the Lufthansa Group with its different business segments offering a broad spectrum of products and serving correspondingly varied customer groups.

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NATIONALITIES

"For the Lufthansa Group, diversity is the lever that sets agility, creativity and innovation in motion.

Juliane Grauer
Equal opportunity officer, Lufthansa Group

Welcome Diversity!

Organizational anchoring

The Lufthansa Group pursues a comprehensive management approach, which understands diversity in the sense of variety with regard to gender, demography and internationality, creativity and mixing of perspectives. Diversity and equal opportunities are firmly anchored in the current personnel strategy and simultaneously in the Group-wide organizational structure by means of clear responsibilities.

The process-oriented matrix organization defines so-called process owners across the Group. They are responsible for developing and implementing measures that are suitable for reaching defined goals. In 2017, a "Diversity" process owner was named in this context. He is responsible for the Group-wide development of diversity and monitors the implementation of goals in the relevant processes. Regular reporting, for instance concerning the gender quota, allows the verification of the effectiveness of the management approach and the related measures. Additionally, exchanges in networks or with other DAX-30 companies allow comparisons of developments by means of external benchmarks. Furthermore, such comparisons provide insights on how effective specific measures are.

For more than 20 years, the Group has had an officer responsible for equal opportunities, whose task and role is the strategic further development of this topic within the Group. In addition to the reporting responsibility by the process owner and the head office function, the Lufthansa Group set up a project to promote women in management positions in 2016; it initiates and implements measures to increase the share of women in management (see page 66, Balance 2017, Three questions for: Simone Marshall).

Goals and central action areas

The Lufthansa Group pursues several goals with its diversity-oriented personnel policy. The Company wants to better take advantage of the enormous potential of the diversity that already exists among its roughly 130,000 employees, while simultaneously further increasing diversity in profiles, competencies and experience up to the management level. In addition to its explicit goal of strengthening and expanding its attractiveness as an employer, the aviation group aims at using diversity management to secure its competitiveness and future viability, increase its ability to innovate, facilitate access to potential employee groups on the global labor market and boost its distinctive customer orientation.

On the occasion of International Women's Day 2018, all-women crews at the Lufthansa Group again took off on flights to a number of international destinations.

The Lufthansa Group approaches the task of realizing diversity and equal opportunities in accordance with defined goals from several directions. For example, the Company wants to increase the share of women in management and improve the compatibility of work and family – two central goals in the area of gender diversity to ensure equality between men and women. Further items on the agenda are an even stronger internationalization of staff and the inclusion of people with disabilities.

Gender diversity

Company-wide, the Lufthansa Group employs nearly as many men as women. In management positions[1] too, women have long been well-established. Nevertheless, it is especially at the management level that their numbers should be increased. At the end of the reporting year, 15.1 percent (2016: 15.6 percent) of managers worldwide were women. Despite Group-wide reorganization measures and the simultaneous suppression of one management level, merely a (temporary) stagnation or rather a slight decline of this share was recorded during the reporting year, when compared with the preceding year. Numerous targeted measures were effective in preventing a more marked decline; renewed increases are expected for the future.

Increasing the share of women in the cockpits of the Lufthansa Group airlines is also one of the goals of personnel strategy. In 2017, the share of female pilots was 6.1 percent (2016: 5.5 percent). The prospects are positive: currently, the share of female junior pilots already stands at 15 percent.

The Lufthansa Group avails itself of a broad portfolio of measures and activities to increase the share of women in management positions. For example, since 2015 a transparent job advertisement process for management positions has been used and diversity criteria have been applied in filling vacancies.

The internal development and mentoring program "GoAhead" was already in its fourth year in 2017; it is addressed at women who aim at a management position (see page 77, Balance 2015). From 2018, selections will be made for "GoAhead reloaded". The program will be on the starting blocks twice in 2018 and will thus allow twice the number of female talents to participate as before. Another innovation: from 2019 "GoAhead reloaded" is to be offered once a year for female team leaders and top performing managers. For many years, the Lufthansa Group has also supported female junior employees on their path to management positions with cross-industry mentoring. A recent addition is special coaching for female talents who take parental leave and plan their reentry.

1 In addition to the legal gender quota, which applies to the first and second management levels below the Executive Board, gender data concerning the entire management and all supervisors with responsibility for personnel are regularly monitored and reported.

In the context of a pilot project, the Lufthansa Group examined the influence of gender-neutral language on applicants' behavior and the selection of applicants. Concretely, job advertisements and the selection of applications for the "ProTeam" Generation 2018 were scientifically administered. The Company is already taking advantage of the insights thus gained for the selection of the next generation of this program.

Since the middle of 2016, the Lufthansa Group has been active in the initiative "Chefsache" ("A Matter for the Boss"), a network of managers from business, science, the social sector, the public sector and media, who feel personally committed to equal opportunities between men and women.

On the occasion of International Women's Day 2018, all-women crews again took off on flights operated by Lufthansa Group airlines – as they did the previous year – to a number of international destinations. To put down another marker on this day, Lufthansa showed "FlyingLab" presentations from female digital experts during an in-flight conference on its flight to Houston. The Group also participated actively in the 5th German Diversity Day by having a presence in the intra-company Diversity Film Nights. These campaigns were intensively communicated to increase awareness.

Within the Group, the concept of equal opportunities has been anchored in collective bargaining agreements for a long time. The principle of "same pay for same performance" was applied within the Lufthansa Group as long ago as the 1970s. Collective wage agreements that can be consulted by all employees and company-wide non-tariff remuneration systems are proof of this approach. The "Report on equality and equal pay" was produced in accordance with § 21 and 22 of the Remuneration Transparency Act (EntgTranspG) for Deutsche Lufthansa AG and published on the Internet. Apart from a statistical part, it contains information concerning measures to promote equality between men and women as well as their effect, and measures to ensure equal pay for men and women. ↗ **www.lufthansagroup.com/responsibility**

An important topic for internal communications remains sensitization concerning the topic of "unconscious bias". The Group intends to increase awareness of this phenomenon of unconscious thinking patterns and their effect on personnel processes in 2018 as well. Therefore, each manager watches a short video on the subject before making a selection decision. This measure was developed jointly with the companies represented in the initiative "Chefsache" ("A Matter for the Boss").

EMPLOYEES IN THE LUFTHANSA GROUP

KEY DATA 2017 [1]

129,424
EMPLOYEES Group total

46.1 %
FEMALE EMPLOYEES Group total

35.0 %
SHARE OF WOMEN with staff responsibility

15.1 %
SHARE OF WOMEN in management positions

6.1 %
SHARE OF WOMEN in the cockpit

1,101
APPRENTICES

120,000
JOB APPLICATIONS

1 as of December 31, 2017

The individual companies within the Lufthansa Group also vigorously pursue the goal of gender diversity and equal opportunity. For example, the LSG Group has supported female talents since the end of 2017 with the program "Female Leadership". At SWISS, the "Girls & Women Coding Event" aimed to get more young women interested in IT jobs. Against the same background, Lufthansa Systems participated in the Berlin hackathon "Hack like a girl" as a partner company. Austrian Airlines makes diversity and equal opportunities a subject of discussion at the "Impulse" presentations, which are given twice a year. At Lufthansa Cargo, the initiative "Gender Balance", which was introduced in 2012, has led to the near-doubling of the share of female managers.

Work-life integration

Traditional family and work models are undergoing change. The Lufthansa Group supports its employees and managers by offering flexible work-time models, which accommodate this development and the related varying needs in different life phases, for example with part-time and home-office options. This allows not only a better equilibrium between professional and private demands, it also promotes employees' motivation and health. The Group provides detailed information about the concrete options available on the intranet and in the context of various events. The range of communication measures has increased the offers' transparency and stimulated demand.

For example, the Group offers the options of filling managerial positions in tandem (shared leadership) or taking limited time off work (sabbaticals). In Frankfurt, Lufthansa Group employees together with their children have the use of two parent-child offices when there are difficulties with child care; in Hamburg one such office is available. Offers such as the summer school vacation care program "Luftikusse" in Frankfurt and Munich, "pme Familienservice" at all German locations or the network "Väter gGmbH" ("Fathers, Inc.") were continued during the reporting year as well (see page 86 ff., Balance 2016).

The topic of compatibility of work and caring for family members also plays an important role. In 2015, the Lufthansa Group signed the "Charter for care" in the state of Hesse and in 2017 the emphasis was on a series of internal events with presentations and webinars. In addition, the Group offers regular care consultation hours in Frankfurt. This service will also be offered in Hamburg and Munich from 2018.

Internationality

Given its diverse business segments with international locations and global business links, a broad range of cultural and linguistic diversity exists within the Lufthansa Group. The goal is to further strengthen this diversity, as it supports the Company's business strategy with regard to future developments. Therefore, the Group aims at an even higher degree of internationalization among its employees. Currently, a number of measures serving this purpose are being implemented, such as the development of a Group-wide employee transfer guideline or even more internationality in trainee and internship programs. Outside of Germany, the Lufthansa Group specifically hires local employees and supports them adequately in order to enable the sharing of know-how between regions and business segments by means of selective transfers on the one hand, and to promote employees' individual development and the creation of inter-cultural competencies on the other.

Inclusion

For the Lufthansa Group, employment and inclusion of people with disabilities is not only a legal obligation, it also fulfills a social responsibility and is thus an important goal of personnel policy. The Group is committed to promoting people with disabilities professionally and treating them fairly and caringly. Measures designed to include people with disabilities are discussed and advanced in regular dialogue events involving top management, HR management and representatives of the severely disabled.

At the end of 2017, the employment rate for people with disabilities at the Lufthansa Group in Germany stood at 4.3 percent. While some Group companies, such as LSG Sky Chefs, reach employment rates of more than 20 percent and thus overfulfill the legally defined minimum quota of 5 percent, the relevant employment at the passenger airlines is significantly lower, in part due to legal requirements. Therefore, the Lufthansa Group also takes advantage of other ways of supporting people with disabilities, such as placing orders with Werkstätten für Behinderte Rhein-Main (see page 79, Further social projects within the Group companies) or the cooperation with the National Paralympic Committee Germany (DBS).

Four questions for
CLAUDIA RAUTENBERG

Head of Cultural Transformation and
of Lufthansa Group CAMPUS

YOU ARE RESPONSIBLE FOR THE AREA OF CULTURAL TRANSFORMATION AT THE LUFTHANSA GROUP. DOES THE COMPANY'S CORPORATE CULTURE NEED A NEW ORIENTATION?

"New" is often understood to mean that everything needs to be changed. And yet, today there are companies and areas within the Lufthansa Group that work together highly successfully while their cultural identities have evolved very differently. We want to strengthen and expand this ability. At the same time, we need to evolve culturally at the same speed as we evolve structurally. Our business model is today challenged by new competitors and in entirely new ways. That is why we need to become faster, further expand our ability to innovate, and focus on the customer more than ever. For the Group this means shedding unnecessary organizational complexity. Equally, each individual employee needs to assume responsibility, to remain flexible and to learn continuously.

"CHANGE MANAGEMENT" IS ONE OF HR'S CENTRAL BUZZWORDS. WHY IS THIS SO IMPORTANT?

The world around us is changing rapidly. Because of this change the Lufthansa Group needs to further evolve as well – structurally, but also with regard to its attitude and conduct. In dealing with this kind of volatility we need professionalism. This means that business transformation needs to be implemented both in effective and responsible ways. Managers in particular are forced in a way not known earlier to initiate transformation, steer this process together with their teams, and ensure operative stability at the same time. This is why we accompany and accelerate this process, and thus ensure that changes take place in a way that is as comprehensible as possible for managers and employees, and unfolds without significant frictional loss.

WHICH PROGRAMS AND TOOLS HELP TO DRIVE CULTURAL CHANGE?

On the one hand, we promote cultural development by making structural changes. For example, we replaced our bonus system based on individual performance with a collective bonus, which rewards the collective performance. On the other hand, last year we fundamentally expanded and changed our managerial programs because cultural development takes place above all when managers give a corresponding behavioral example. The focus is on measures that support the managers' role, agile work performance within the matrix, and process orientation.

HOW IMPORTANT IS IT TO ADOPT IMPULSES FROM EMPLOYEES AND WHAT ROLE DOES THE GROUP-WIDE EMPLOYEE SURVEY "INVOLVE ME!" PLAY?

Impulses given by employees are very important. The results of the employee survey show us very clearly whether our initiatives gain traction. In addition, the survey gives us important input for further measures and change projects. This type of feedback is a self-evident component of any modern error-and-dialogue culture and thus essential for our ability to innovate.

EMPLOYMENT POLICY BASED ON PARTNERSHIP

↗ GRI 102-41

The Lufthansa Group's success depends greatly on the ideas, enthusiasm and commitment of its employees. Therefore, the aviation company attaches the greatest importance to providing its employees with an attractive work environment and appropriate salaries. Likewise, it is an established tradition always to balance the economic interests of the Group with the expectations and needs of its employees. By developing appropriate standards in personnel policy, the Lufthansa Group positions itself as an employer acting with integrity and in responsible ways. Within the Group, its successful personnel policy is characterized by a proactive approach in an environment characterized by increasing digitalization, rising flexibility and agile structures. Taking into account the dynamic development of social and legal frameworks is indispensable in this context, while integrating social requirements. The goal is to ensure sustainable and future-oriented work structures, and tailor-made resource management at the Lufthansa Group.

Partnership in collective agreements

It is tried-and-tested Company policy to settle clashes of interests between Company management and the bodies representing employees in a transparent manner. A fair approach to coexistence in all areas creates the balance needed to advance the Lufthansa Group's position in the market. The Lufthansa Group employs its staff under conditions that guarantee them social and material security not only during but also after their working years. These are established on the basis of collective agreements that the Company negotiates with its union partners Vereinte Dienstleistungsgewerkschaft (ver.di), Vereinigung Cockpit (VC), and Unabhängige Flugbegleiter Organisation e. V. (UFO). In Germany, almost all Group companies are party to collective wage agreements (nearly 100 percent).

The Lufthansa Group's goal is to conclude long-term and economically viable agreements with its union partners. This allows sustainable success, the ability to plan, and security, for the Company and its employees alike. The guidelines for this joint effort are flexibility and the ability to react with sensitivity.

In December 2017, the Lufthansa Group and the Vereinigung Cockpit pilots' union signed an agreement on all outstanding matters for Lufthansa, Lufthansa Cargo and Germanwings. The agreements conform substantively to the fundamental settlement reached in March 2017. They include new wage and collective agreements, as well as agreements on retirement and transitional benefits, which will remain in effect until at least June 2022. These collective agreements with the labor union partners represent a long-term solution to the risk of strikes. On February 7, 2018, the Lufthansa Group and the trade union ver.di concluded long-term wage agreements for the around 28,000 ground staff employed by Lufthansa, Lufthansa Cargo, Lufthansa Technik and the LSG Group in Germany (see page 31, Annual Report 2017).

Active pay and social policy abroad

Internationalization and globalization offer a broad range of opportunities for the Group's business and personnel processes. As a company with international operations, Lufthansa's pay and social policies are guided by conditions in the various countries. The focus is on the long-term definition of the conditions of employment, which depend on the needs of the employees, operational requirements, and the local labor market – with the inclusion of compensation rules, working conditions, and pension schemes. The Lufthansa Group defines these agreements in cooperation with internal labor committees and employee representatives. The Company is a party to collective wage bargaining with employees in about 25 countries. In all countries where Lufthansa acts unilaterally, the Company uses benchmarks and macroeconomic data such as inflation figures to review salaries usually once a year on the basis of market and competitiveness criteria. In countries with very high rates of inflation, this assessment, which usually leads to pay increases, is performed more often, in accordance with circumstances. In this way the Lufthansa Group offers continual review and adjustment of working conditions for its locally employed staff. As a signatory to the UN Global Compact, the Lufthansa Group has documented its support for freedom of association and the right to collective bargaining

for all of its employees worldwide (see info box page 25). Employees in any country where Lufthansa companies are active are free to lawfully organize themselves and become involved in defining their working conditions. For the reporting year 2017, it is assumed that no business activity within the Lufthansa Group jeopardized the free exercise of employees' rights concerning their freedom of association and right to collective bargaining.

Employee survey "involve me!"

Regular employee surveys have for a long time been an important instrument for the Lufthansa Group to measure employee commitment, identify action fields and initiate change where needed (see page 67, interview Claudia Rautenberg).

In 2015, the Lufthansa Group conducted "involve me!", its first group-wide standardized, voluntary employee survey, which was extended to the significant Group companies (including LSG Germany) in 2017. On the basis of the results of this survey, management is able to directly compare data from the individual Group companies and engage in a transparent, Group-wide dialogue. In 2017, employees had the opportunity to respond to questions from 11 topic areas. With a return rate of 50 percent, participation was at about the same level as in the preceding year.

The results of the employee survey are also reported to the Supervisory Board and the Executive Board. At management level and broken down for individual teams, the results are communicated and discussed in order to derive and implement strategic measures for the entire Lufthansa Group and individual organizational units.

The results of "involve me!" also serve as basis for the calculation of the "Engagement Index" (EI). This ratio indicates to which degree employees feel committed to the Group, to which degree they are willing to lend their support to their employer, and how much they are inclined to recommend the Company to others. It also gives insights into the Group's attractiveness as an employer and allows comparisons with other employers across industry lines. The result is indicated on a scale from 1 (best value) to 5 (lowest value).

During the reporting year, the Lufthansa Group achieved an Engagement Index of 2.3. While this corresponds to a slightly below-average value for German companies, it also marks an improvement of 0.1 points compared with the previous year. In the years ahead, the Engagement Index is to improve annually and reach the average level of comparable companies in Germany by 2020.

The Lufthansa Group is aware of the fact that merely measuring employee commitment is not enough. The greatest challenge comes after the survey is completed. Progress can only be achieved if concrete measures are derived from the survey results and employees can thus see that the Group takes their responses seriously (see page 22 f., Stakeholder dialogue).

In parallel to determining the Engagement Index, the Lufthansa Group again calculated the Leadership Index (LI) in 2017 from data collected through "involve me!", which is oriented by the Group's five Leadership Principles (see page 73, Balance 2015). During the reporting year, the LI stood at 2.1 points and thus 0.1 point higher than the previous year.

Furthermore, in 2017 the Group calculated the Health Index on the basis of data generated by "involve me!" for the first time (see page 72 f., Occupational safety and health management) and thus received a third significant ratio.

TALENT MANAGEMENT

The fascination for jobs within the Lufthansa Group is unabated: during the reporting year, about 120,000 applications were received and the Group has received top positions in renowned employer rankings for many years. Talent management has a key role in the Group's HR strategy for gaining qualified and motivated personnel for all management and employee levels. It is one of the support pillars in the Lufthansa Group's efforts of establishing itself long-term, both internally and externally, as an attractive employer and to secure the Company's future. In this way, the Group also counteracts the increasing lack of qualified personnel and is able to secure competencies that are in demand within the Company.

In 2014, the Lufthansa Group implemented its talent management philosophy under the motto "Every employee has talent!" (see page 83 f., Balance 2015). It gives all employees the opportunity to shape their own careers in the Group according to their individual talents and interests. A standardized Group-wide potential identification process and subsequent training programs help them to do so. This both increases transparency and brings talents to the fore. Employees are thus encouraged in their own responsibility and managers are able to identify potentials and support these in concrete ways.

Within the organization, talent management is anchored by means of responsibilities that were clearly defined in the context of the Group's process-oriented reorganization in 2017. This comprehensive approach, which also includes training and continuing education, is applied Group-wide by means of an extensive catalogue of measures. Its goal is to promote talents

"Spotlight on Talent" process

and increase not least the Company's ability to innovate by means of different employee competencies, experiences and perspectives. In this context, the Lufthansa Group places great emphasis on diversity and equal opportunities. It is one of the Group's special concerns to support the career development of female talents (see page 62 ff., Diversity and equal opportunities).

The topic of talent management is regularly on the agendas of the Executive Board, HR board and Supervisory Board; these committees can thus initiate adaptations and complementary actions when needed. Beyond that, regular exchanges within networks ensure the validation of such measures.

Meaningful data on the development of the Lufthansa Group's employees is provided annually by the internal performance and talent assessment instrument "Profile". Based on this data, the Group is able to evaluate the effectiveness of talent management measures and to which degree set goals have been reached. During the reporting year, about 12,000 employees within the Lufthansa Group completed or started the performance and talent process. The related platform "eProfile" is being rolled out step by step for additional employee groups and thus allows a Group-wide overview of the talents within the Company.

Promoting internal talents

The different formats and initiatives used in the Lufthansa Group's talent management are addressed at all employees and are not only limited to vertical promotions. Their goal is also both to support defined competencies and to identify and broaden talents for specific job families and different career paths. The options range from trainee programs to initiatives at the top management level. In this context, strategic personnel planning always takes the employees' different life phases into account.

An important format is the visibility platform "Spotlight on Talent", introduced in 2016 (see page 70, Balance 2017). During the reporting year, the Lufthansa Group expanded this format significantly. The annual process aims at giving talents in specific job families more visibility – across all boundaries of companies within the Group (see illustration on the left). At the same time, this format is designed to give the Lufthansa Group an overview of the talent situation in the individual job families.

In the Group-wide trainee program "ProTeam", the Lufthansa Group introduced two new modules in 2017: "ProInnovation" and "ProSocial". The module "ProInnovation", which is to be expanded in 2018, is based on a tandem concept. It combines the knowledge of selected employees (experienced specialists and managers from different hierarchical levels across the Group as well as members of the employee representative committee and the Supervisory Board) with employees from different trainee programs. The goal of communication at "eye level" established in this way is the shared, responsible shaping of the future by means of diversity in age, education, hierarchy and specialist knowledge.

The second new "ProTeam" pillar, the "ProSocial" module, includes a four-week stint in a social project. It aims at strengthening the participants' social and intercultural competencies, team spirit and sense of responsibility. In October 2017, the Lufthansa Group realized the program for the first time in cooperation with its charitable aid organization help alliance (see page 75 ff., help alliance).

The Lufthansa Group also aims to increase its attractiveness for external talents on a continuous basis. Using innovative employer branding, it positions itself as an attractive employer in the applicants' market and emphasizes the variety and specific strengths of individual Group companies. Those interested can find paths into the Group's working world via the career portal ↗ **www.Be-Lufthansa.com** (see page 9, Balance 2016). For modern personnel recruitment the Group also uses active sourcing via external recruiting platforms. In conjunction with other social media channels the Group takes advantage of the opportunities offered by (inter)active communication with potential qualified employees and managers. To have an additional recruiting resource available, the Lufthansa Group maintains contacts with former employees on the formats "Talent Hub" and "Alumni Network" (see page 71, Balance 2017).

OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT

Occupational safety and health protection are central action areas for the Lufthansa Group, jointly managed by the Medical Services (including psychosocial counseling), health and safety officers, and the health management function. To promote employee health, the areas involved have implemented various measures through which the Group not only fulfills its duty of care, but also makes an important contribution to being an attractive employer.

Megatrends such as globalization, competition and digitalization are particular challenges for organizations such as the Lufthansa Group and its employees. In addition, there are internal challenges such as an increasing need for flexibility, restructuring and lack of qualified staff. The Lufthansa Group's comprehensive approach to health and safety accompanies megatrends in society and internal changes to safeguard its employees' health and motivation. Consistently, the Group rated health protection as "very important" in its 2016 materiality analysis.

Lufthansa Group Health Management

Health Management

To further develop health protection Group-wide, the Company successfully launched the program Health Management@ Lufthansa Group in 2016. The goal is to maintain the employees' health and ability to perform long-term and sustainably, and to encourage employees to treat their health as a personal responsibility (empowerment). Health Management@Lufthansa Group creates a strategic and structural framework that has particular influence on the development of the organization and the leadership skills of managers. This includes integrating health aspects into existing, comprehensive processes and instruments. Specific action areas concerning targeted measures are partly developed from the results of the employee survey "involve me!" (see page 69).

Health Management coordinates and manages the central steering committee "Health" (see page 72, Balance 2017), a forum which meets at regular intervals and includes representatives of the largest Group companies, employee representatives, occupational safety and disabled employees' representatives as well as experts from the medical and psychosocial areas.

Health Index

The Health Index was compiled for the first time in 2017 as the primary performance indicator for measuring the employees' overall health level; it is based on relevant questions in the "involve me!" survey. The results serve to identify aspects of work that require adjustment, to develop focused measures to strengthen individual health resources and minimize the risk of occupational hazards. As with the Engagement Index, they are communicated to top management, team managers and the entire workforce.

The Health Index uses a scale from 1 (best) to 5 (worst). In 2017, it stood at 2.3, which corresponds exactly to the external benchmark for the region including Germany, Austria and Switzerland and for each individual country in this region. To be able to determine more exact indications of need for action, characteristics of healthy work culture were drawn from the results of "involve me!" Based on these factors of influence, the Group companies are better able to analyze their individual health-related results in a differentiated way and identify action areas aimed at improving the Health Index. Therefore, the focus for 2018 is on deriving need-oriented, target-group-specific measures and activities across the Group.

Medical Service

The Medical Service has a key role in the Lufthansa Group's concept of occupational safety and health protection (see page 92, Balance 2016). Its permanent core task is to secure the Group employees' ability to perform and thus ensure reliable business activities and flight operations.

The Medical Services at Lufthansa, SWISS and Austrian Airlines are holistic centers of excellence, permanently offering the full range of services for aviation and occupational medicine, vaccinations and travel medicine, outpatient care, a comprehensive social and medical advisory service, and other preventive and healthcare treatments. Beyond these individual treatments, the Medical Services provide advice to decision-makers, committees and employee representatives concerning all issues of occupational health and safety.

Psychological and psychosocial factors also have a significant influence on health, safety and performance levels in work settings. Since 1985, the Lufthansa Group has therefore offered its employees, teams and organizational units individual counseling and mediation services under the obligation to maintain confidentiality, as well as different services of psychosocial organizational counseling.

Beyond the obligatory features in the area of health protection, the Lufthansa Group offers its employees a wide range of preventive measures on a voluntary basis, both for administrative and flying personnel. These measures and campaigns are widely communicated within the Company.

Occupational safety

Another important contribution to employee health comes from the function of occupational safety, which has existed for many years and consistently implements measures to prevent accidents, health risks and occupational illnesses. By means of risk assessments and regular safety inspections, the Group's occupational safety experts check all professional activities in the Group companies in Germany.

Low numbers of work-related accidents and occupational illnesses are a measure of success for medical and technical aspects of occupational safety and occupational hygiene.

The Occupational Safety Committee (OSC) is the central steering unit for all issues related to job safety within the Lufthansa Group; meeting at regular intervals, it pools all issues of job safety Group-wide and monitors their implementation.

In Germany, occupational safety committees with employer and employee representation are active at all relevant locations of the Lufthansa Group. They optimize processes and agree on measures to improve job safety.

CORPORATE CITIZENSHIP

The Lufthansa Group's stakeholders expect a comprehensive social commitment that reflects the Group's importance and size, and that is transparent, credible and comprehensible at the same time. To meet this expectation, responsible thinking and practice go far beyond the aviation group's operative business activities.

As the Lufthansa Group's commitment to social causes has traditionally grown over the years and is characterized by changes, the Company had its commitment portfolio verified internally in 2016 and all action areas analyzed and evaluated also by external experts (see page 75, Balance 2017). As a result, the Lufthansa Group now focuses its social commitment above all on the core topics Education/Enabling and Life/Health. The goal is to bundle the varied activities within the Group by themes and increase their level of effectiveness.

The emphasis in the topic area Education/Enabling is on helping disadvantaged people to be able to lead successful, healthy and self-determined lives. This is above all facilitated by educational offers, which are bundled and coordinated by the help alliance, the Lufthansa Group's charitable aid organization (see page 75 ff.). This commitment is complemented by a number of additional aid projects supported by the Group airlines and service companies, such as Cargo Human Care (see page 78).

In the context of the topic area Life/Health, the Group has for many years provided swift and professional emergency aid in the event of humanitarian crises by means of aid flights. Lufthansa Cargo cooperates with renowned emergency aid organizations for this purpose. This ensures fast and uncomplicated aid in the area of initial logistical supply (see page 80, Humanitarian emergency aid).

Beyond that, the aviation group respects the wish of its stakeholders to continue its support for the protection of the crane – the Lufthansa Group's heraldic bird (see page 81, Further commitment). Further selected partnerships are maintained in the socially relevant areas of culture and sports.

Another significant component of the Lufthansa Group's approach to corporate citizenship is the selected social commitment of its employees. For this reason, the corporate volunteering activities and other participation formats are closely connected to the HR strategy. The Lufthansa Group continuously develops the concepts of these offers. For example, the Group complemented the trainee program ProTeam with the new module "ProSocial" (see page 76, interview Andrea Pernkopf and Susanne Kotysch).

In the fall of 2017, employees of the Lufthansa Group again participated as coaches in the so-called "Impact Weeks" with an emphasis on Design Thinking (DT). The Impact Weeks follow a dual concept consisting of a learning and a practical experience phase: Following their training to become DT coaches, the employees pass their knowledge on to students at local universities. The local DT coaches trained in this way are then able to support people on location in setting up their own company. During the reporting year the focus was on Nigeria, Rwanda and Columbia.

Since 2002, the Lufthansa Group has supported business@school, an educational initiative of The Boston Consulting Group (BCG), a management consultancy firm. Every year the project offers more than 1,500 high-school students in Germany, Austria, Italy, Switzerland and the USA an opportunity to acquire business knowledge and key qualifications over a period of ten months in a practice-oriented manner and develop their own business ideas. Launched in 1998 with two schools, the program now has more than 23,500 participating students. Currently, about 20 employees of the Lufthansa Group are committed to business@school. For the fifth time already, the Group awarded a special prize in 2018 for the best corporate analysis in Phase I of the initiative – an "adventure day" at the Lufthansa Aviation Center at the Frankfurt hub. ↗ **www.business-at-school.net**

Lufthansa flight attendants visiting the help alliance project iThemba.

help alliance

Closer to the world. Closer to its people.

The focus of corporate citizenship activities is on social and humanitarian projects around the world. These are pooled and managed under the umbrella of the help alliance, the Lufthansa Group's nonprofit aid organization. The help alliance was founded by Lufthansa employees in 1999 as a registered association. Effective from January 1, 2017, it was restructured as a nonprofit limited liability company (gGmbH) with headquarters in Frankfurt and under the umbrella of the Lufthansa Group. Prior to this, the Lufthansa Group had provided both in-kind and financial support, and sponsorship for the work of the employee initiative help alliance e. V. The importance of the help alliance is emphasized by the fact that it belongs to the department of the Chairman of the Executive Board and CEO.

The help alliance acts as a catalyst for greater social commitment, combining proven projects initiated by employees with the strength and network of the Lufthansa Group (see page 76, interview Andrea Pernkopf and Susanne Kotysch). Predefined criteria ensure that the supported projects are sustainable. The decision to focus on social and humanitarian projects in the core areas of Education/Enabling and Life/Health has made it possible to harmonize the charitable initiatives of the Group companies. At the same time, it enables the efficient and targeted use of available funds. Fundraising models can thus be made more systematic and donations can be acquired more effectively.

For the financial years 2017 and 2018, the Lufthansa Group fully covers the costs of administration, project monitoring, fundraising and communications for the help alliance gGmbH. This ensures that all other donations can be fully used as funds for aid projects. This also includes voluntary salary donations from employees of the Lufthansa Group. The option of the so-called payroll giving, introduced in April 2017, is initially open to about 80,000 employees and retirees who are covered by the Lufthansa Group's joint payroll system.

Four questions for ANDREA PERNKOPF

Managing Director of help alliance gGmbH

SUSANNE KOTYSCH

Managing Director of help alliance gGmbH and Head of Corporate Responsibility Communications & Events, Lufthansa Group

WHAT IS THE IMPORTANCE OF CORPORATE CITIZENSHIP FOR THE LUFTHANSA GROUP AND WHAT IS THE ROLE OF THE HELP ALLIANCE?

Susanne Kotysch: Corporate citizenship (CC) is an important pillar for us in the overall concept of corporate responsibility. This voluntary commitment is aimed at making a contribution to solving social problems and challenges around the world. The Lufthansa Group pools all initiatives and aid projects that pursue these goals under the umbrella of the help alliance.

IN 2017, THE ASSOCIATION HELP ALLIANCE WAS TRANSFORMED INTO A CHARITABLE LIMITED LIABILITY COMPANY. WHAT HAS HAPPENED SINCE?

Andrea Pernkopf: Quite a lot! A closer interlinking with the Lufthansa Group opens up new opportunities for us; for fundraising, for example. By cooperating with the Human Resources department, we became the ninth DAX 30 company to introduce the so-called payroll giving. Employees have had the option to donate part of their salaries to the help alliance since April 2017 and thus give children and young people new educational opportunities and the possibility of better lives. Furthermore, for the first time 11 participants of the trainee program ProTeam of the Lufthansa Group have joined a help alliance aid project for four weeks. For many ProTeamers the perspective of being able to work in a social project was a decisive factor for their application.

WHAT ARE THE CRITERIA FOR SELECTING PROJECTS AND HOW DO YOU MEASURE SUCCESS?

Andrea Pernkopf: In the context of the transformation from association to charitable limited liability company we also sharpened our profile. The emphasis is now on the areas education, job creation and income generation. There are clear guidelines and criteria that form the basis on which we decide which projects we will support. We take a close look at a project's goals and check regularly if and how these have been reached. The allocation of funds is linked to these checks. The underlying conditions are also of particular importance, such as the current situation in a country or in which way the local community is included. After all, our goal is to provide sustainable development cooperation.

THE EMPLOYEES' SOCIAL COMMITMENT IS TO BE FURTHER EXPANDED. WHICH FORMATS OF PARTICIPATION EXIST AND WHAT IS BEING PLANNED?

Susanne Kotysch: Our employees have the option of participarting as volunteers, suggesting projects actively and subsequently sharing the responsibility. We want to expand these and other participation options further and implement them together with the Human Resources department as a central instrument in the CC "tool kit". This distinguishes the help alliance from many other aid organizations and thus makes it so special.

Areas of emphasis in 2017 and outlook for 2018

During the reporting year, the help alliance was responsible for 37 aid projects with a financial volume of 2 million euros. One area of emphasis for the help alliance's commitment was on the project iThemba in South Africa, which offers children in a Cape Town township a high-quality pre-school education. Continuous monitoring and regular evaluations of projects according to a predefined catalogue of criteria ensure that the supported projects and programs improve the life situations of children, their families and the community in an effective and sustainable way, and that project funds are used effectively and efficiently.

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AID PROJECTS WORLDWIDE

The construction of the iThemba primary school in the Capricorn township is the help alliance's largest project so far with an investment volume of more than 1 million euros. Since its inauguration in January 2018, 105 children can be taught in three classrooms. As soon as construction is completed, 700 disadvantaged boys and girls will receive a high-quality education and thus a perspective for a better future.

With this project, the help alliance makes a determined commitment to attaining the "quality education" goal on the United Nations' Agenda 2030 for sustainable development (see page 25, Sustainable Development Goals). To realize a comprehensive approach, the construction of a Community College open to all family members is planned for the mid-term. It will also offer evening classes and sports activities for young people.

The help alliance set another milestone together with Fraport AG by installing 40 new donation pillars at Frankfurt Airport. These are intended to collect donations of up to 100,000 euros to support social aid projects. While half of the donation revenues benefit education initiatives in Africa supported by the help alliance, 25 percent benefit the project "Ocean Clean Up" at the suggestion of Fraport and 25 percent the association "Wings of Help".

ON-BOARD COLLECTION PROGRAM "SMALL CHANGE – IT'S A BIG HELP"

With the goal of creating a bridge towards a better life for people in need, the help alliance launched the on-board collection program "Small Change – It's a Big Help" in 2001. It offers passengers aboard Lufthansa Group long-haul flights the option to donate coins and banknotes in any currency. Small, sealable donation envelopes are available in the seat pockets for this purpose, which are collected by flight attendants and forwarded to the help alliance. Remaining currency can also be deposited in donation pillars placed in employee areas, Lufthansa lounges at German and selected international airports as well as the public areas at the Frankfurt and Munich hubs.

DEVELOPMENT OF DONATION VOLUMES IN EUROS

October 2002:
Start of Condor's participation
July 2012:
Start of Austrian Airlines' participation
November 2017:
Start of Edelweiss Air's participation

In addition to participating in the on-board collection program "Small Change – It's a Big Help" (see page 77), Lufthansa passengers can also do a good deed when shopping. Between November 1, 2017 and February 28, 2018, the airline donated one euro to the help alliance project "Child Sponsoring Circle India" for each purchase made on board. Revenues from this campaign reached about 80,000 euros. A mere 20 in-flight purchases make it possible for a child in the Indian state of Madhya Pradesh to attend a boarding school for one month, which includes nutritious meals, clothing, medical care and a school education. To provide medical care for the inhabitants of remote villages as well, the aid organization additionally sets up health camps.

↗ www.helpalliance.org

Ten years of Cargo Human Care

In May 2007, employees of Lufthansa Cargo, together with German physicians, founded the humanitarian aid association Cargo Human Care (CHC). The basic idea was – and remains – to help destitute people as well as impoverished and underprivileged orphans in Kenya in uncomplicated, professional and sustainable ways. The focus of this charitable commitment is on providing medical care, education and accommodation.

Cargo Human Care, together with the help alliance and Regine Sixt Kinderhilfe Stiftung, makes the construction of an education center in a slum area of Nairobi possible.

The Executive Board of Lufthansa Cargo has supported the aid project from the start. The CHC has currently more than 550 members. One central pillar of the development aid work is the sponsorship program: the funds generated on a regular basis in its framework currently benefit more than 250 children, youths and young adults who receive medical care in addition to a solid education and vocational training. Over the past ten years, the CHC has received donations of about 3 million euros.

Cargo Human Care provides both the coordination work in Germany as well as the medical care in Kenya on a volunteer basis. In addition, the aid association assumes the costs of the Kenyan personnel at the Mothers' Mercy Home and the CHC Medical Center as well as those for treatments and operations in the local Nazareth Hospital. The association works highly effectively because a mere 0.6 percent of all costs are assigned to administrative tasks. In addition, Lufthansa Cargo finances the physicians' flight tickets and provides transport capacities for medical equipment free of charge.

Currently, Cargo Human Care operates the Mothers' Mercy Home for 120 orphans in Kianjogu as well as the John Kaheni Residence, a residential and educational center for young adults, which looks after up to 70 school-leavers while they follow further education courses (see page 103, Balance 2016), among others. At the Cargo Human Care Medical Center in Nairobi, 50 German physicians provide about 2,000 treatments a month. During the reporting year, the center looked after approximately 7,000 patients and provided more than 25,000 treatments.

Furthermore, Cargo Human Care is actively involved in many other areas and projects, and continuously expands its commitment. For example, in September 2017 the association signed the contracts for the construction of the Happy Child Education Center, to be located in a slum area of Nairobi. This school is to provide classrooms for 100 children. The CHC, help alliance and the Regine Sixt Kinderhilfe Stiftung each finance one-third of this project. The building was to be completed in the second quarter of 2018, a date that had to be postponed until the end of 2018 due to the difficult political situation in Kenya.

↗ www.cargohumancare.de

Further social projects within the Group companies

SWISS

- The airline has supported SOS Children's Villages Switzerland since its foundation – among other measures with flight tickets and on-board collections of funds in coins.
- Funds donated benefit projects located at SWISS destinations.
- In 2017, 20 renovated family houses were formally inaugurated at the SOS Children's Village in Bawana, India, for 118 children and their families. The comprehensive renovation was made possible by SWISS passengers who donated coins on board with a total value of 370,000 Swiss Francs.
- In cooperation with the Foundation ProJuventute, SWISS made it possible for children and adolescents from the Zurich region to experience the airline and airport first-hand during the summer vacation. The Foundation's goal is to support adolescents energetically in their development towards becoming self-confident and responsible adults.
- In its procurement process, SWISS takes special suppliers into consideration: every year, SWISS orders about 1,900 Business Class and 290 First Class clothes hangers from the Foundation "Orte zum Leben" ("Places to Live"). The foundation offers people with disabilities a place to live and work, and operates a carpenter's workshop, among others. The Foundation Pigna, a workshop for people with disabilities in Kloten, looks after cleaning and readying for use about one million onboard headphones a year for SWISS.

AUSTRIAN AIRLINES

- Concentration on social projects in central and eastern Europe.
- The focus is on renowned organizations such as "Global 2000", "Help for Children from Belarus", and "Alliance for Children".
- In 2017, 1,800 blankets were donated to "Caritas".

BRUSSELS AIRLINES

- During the reporting year, employees of Brussels Airlines again took part in "Bike for Africa". This mountain bike event is an initiative of "b.foundation for Africa", a program launched by Brussels Airlines in 2010. Revenues benefit humanitarian projects on the African continent and in Belgium.
- In addition to the social commitment of its employees, the airline also supports several nongovernmental organizations.

LUFTHANSA CARGO

- A close cooperation has existed for more than 35 years with the registered association "Werkstätten für Behinderte Rhein-Main e. V." (Workshops for the Disabled, WfB Rhein-Main) in producing lashing straps used for loading cargo aboard aircraft. WfB Rhein-Main's goal is to give people with disabilities an opportunity to participate in working life and to integrate them into the job market.
- With a current order volume of almost 1.2 million euros Lufthansa Cargo is the largest manufacturing customer at WfB Rhein-Main.
- The association was certified in 2016 by the European Aviation Safety Agency (EASA) as development company and by Germany's Federal Aviation Office (LBA) as manufacturing company. WfB Rhein-Main is thus one of only six manufacturers worldwide that produce lashing straps certified according to these standards.

LUFTHANSA TECHNIK

- Supports sports events at Group's corporate headquarters in Hamburg, for example the "Airport Run" and "Cyclassics".
- Made arrangements for a concert in the framework of the renowned Schleswig-Holstein Music Festival for the benefit of work developing young musical talents and supports the foundation "phönikks", which aids families affected by members ill with cancer.

LSG GROUP

- Its regionally varying commitment includes educational projects, health promotion and sports events, among others.

On September 30, 2017, Lufthansa Cargo operated an aid flight from Frankfurt to Aguadilla, Puerto Rico.

Emergency humanitarian aid

Acting swiftly and applying professional logistical know-how are decisive factors in helping victims of natural disasters and humanitarian crises immediately and effectively. Thanks to its expertise as an aviation group with international activities, the Lufthansa Group is able at any time to provide transport capacities aboard its freight aircraft in such extreme situations – a commitment that is part of the pillar Life/Health of the Group's corporate citizenship program (see page 74, Corporate citizenship).

The Lufthansa Group's emergency humanitarian aid also benefits from its freight airline Lufthansa Cargo long-term experience with charters. Thanks to "network-on-demand", aid shipments can be transported quickly, professionally and flexibly to all destinations within and outside the network served by the Lufthansa Group airlines.

On September 30, 2017, Lufthansa Cargo operated such an emergency aid flight from Frankfurt to Aguadilla, Puerto Rico. It carried about 80 tonnes of aid supplies, including potable water, clothes and food, which were for the benefit of the roughly 400 employees of Lufthansa Technik Puerto Rico (LTPR) and their families at this location and in neighboring municipalities, who were suffering from the effects of Hurricane Maria. Simultaneously, the help alliance launched a call for donations.

The Lufthansa Group closely cooperated with local and U.S. administrations to organize the far-reaching aid campaign in the unincorporated U.S. territory as effectively and efficiently in all relevant details. In Germany, the LSG Group participated with in-kind donations in this humanitarian support measure, among others.

In the past, Lufthansa Cargo supported humanitarian campaigns again and again by transporting aid supplies (see illustration on page 98 f., Balance 2016). To ensure that initial relief can be launched in an unbureaucratic and swift manner in the event of crises or catastrophes, the Lufthansa Group's logistics specialist closely cooperates with renowned aid organizations.

This includes Germany's Red Cross (DRK), with which Lufthansa Cargo signed a cooperation agreement at the end of 2016. The goal of this cooperation is to accelerate and simplify the preparation of aid flights in measurable ways. This cooperation sustainably improves the effective support and provision for people in need in crisis and catastrophe situations. In addition, the freight airline has been a member of Airlink since the end of 2016. This noncommercial humanitarian aid organization was founded in 2010 by employees of the International Society of Transport Aircraft Trading Foundation (ISTAT). At the beginning of 2013, Lufthansa Cargo entered into a long-term partnership agreement with the emergency aid association "Aktion Deutschland Hilft". Under the motto "Helping faster, together" the preconditions were set up to be prepared for humanitarian emergency situations at any time and to allow the implementation of a swift worldwide logistics chain (see page 81, Balance 2017). The aid association's logo on the fuselage of one of the MD-11F freighters in Lufthansa Cargo's fleet symbolizes this solidarity pact visually as well.

Further commitment

The Lufthansa Group has redefined the strategic alignment of its social commitment and now concentrates essentially on social and humanitarian subject areas. In addition, it supports – as in previous years – selected projects in the areas of nature and species protection as well as culture and sports.

The Lufthansa Group will continue its support for crane protection.

It is a particularly important concern for its stakeholders that the Lufthansa Group will support the sustainable protection of the crane, its heraldic bird, in the future as well. The aviation group responded to this wish immediately: the Lufthansa Group continues its proven cooperation with Naturschutzbund Deutschland e.V. (NABU) and extended the long-standing partnership with NABU's subsidiary Kranichschutz Deutschland gGmbH (Crane Protection Germany).

In the future, NABU and the Lufthansa Group will interlink their existing potentials even more closely.
↗ **www.kraniche.de**

In the cultural area, the Lufthansa Group has cooperated with the Gürzenich Orchestra in Cologne for many years and is its First Global Partner. One of the highlights for the orchestra during the reporting year was again a charitable concert at Cologne's Philharmonie. The revenues of 20,000 euro were equally divided between the help alliance and the children's aid association "Wir helfen" of Cologne-based publishing house DuMont Schauberg. The cooperation with the Gürzenich Orchestra comes to an end at the close of the 2017/18 season.

The Lufthansa Orchestra, which was founded in 2011, currently counts more than 65 employees from all Group companies, representing a wide range of professional groups. The ensemble gave two concerts in spring and fall 2017 in Langen near Frankfurt.

The Lufthansa Choir was founded in 2016 and unites about 60 singers from the Group companies and different Company locations. In 2017, the choir gave a spring concert in Wiesbaden, and also appears together with the Lufthansa Orchestra, for example in April 2018 with the Brahms Requiem in Frankfurt. Both ensembles receive financial and organizational support from the Lufthansa Group.

Another good tradition at the Lufthansa Group is supporting sports. The Company has been a National Sponsor of the German Sports Aid Foundation since 2007 and for many years the official airline of the German Olympic teams, copartner of the German Olympic Sports Confederation (DOSB) and cosponsor of the National Paralympic Committee Germany (DBS, see page 105, Balance 2016).

Key points on

PRODUCT & CUSTOMER

04

84 _ SERVICE AND CUSTOMER CENTRICITY
88 _ FLIGHT SAFETY AND HEALTH PROTECTION
92 _ DATA PROTECTION AND DATA SECURITY

Customers are always the center of attention at the Lufthansa Group. Their satisfaction is a primary concern at all times. The aviation company aims at providing its passengers with perfect service and making flying in all its facets a sustainably positive experience. Against this background, the goal is to assess the Company's offers and products along the entire travel chain on a continuous basis with the aim of optimizing them.

Flight safety and health protection always have top priority in this context. To implement this fundamental standard without qualification, all airlines within the Lufthansa Group operate comprehensive safety management systems. In addition, the Group has a leading position in researching the quality of cabin air. Equally important are data protection and data security as a basis for trusting business relationships.

Customer orientation and a focus on quality are the Lufthansa Group's strategic cornerstones. Regular surveys and a continuous dialogue with passengers help learn as much as possible about customer needs and to include them in the development of innovative offers. Significant investments in a modern and efficient Group fleet, more comfort on board, numerous product innovations, and digital offers ensure that flying is becoming more and more attractive and sustainable for the Lufthansa Group's customers. And the high level of commitment to product responsibility is being honored: in 2017 the airlines and service companies again received numerous prizes and awards. Lufthansa distinguished itself, above all, by becoming Europe's first airline to receive the coveted 5-star Skytrax airline rating, world aviation's highest-ranking quality seal.

SERVICE AND CUSTOMER CENTRICITY

A high level of customer centricity, innovative services and a focus on quality are essential for a service company such as the Lufthansa Group because they increase the flying companies' attractiveness. Therefore, "customer centricity and quality focus" is one of the strategic action areas at the Lufthansa Group. In the materiality analysis of 2016, stakeholders and management rated service and customer orientation as being very important (see page 20 ff., Balance 2016). Negative quality judgments in the core business of flight operations might have a corresponding effect on reputation and also affect the Group's earnings performance over the long-term.

The systematic approaches to the continuous optimization and improvement of service, quality and customer orientation serve the purpose of ensuring the Lufthansa Group's long-term success and supporting its ability to create value. The focus is on further sharpening the Group brands and the promises associated with them. An additional goal is to understand customer needs even better, to identify optimization potentials on a continuous basis and to realize related performance improvements. It comprises making employees more aware in this respect and including them in the process. During the Customer Centricity Days in June 2017, employees of all Group companies had an opportunity to participate actively and discuss approaches leading to an even higher level of customer orientation.

Harmonization of passenger satisfaction measurements

To obtain insights that are as differentiated as possible about passengers as well as their wishes and expectations, the airlines of the Lufthansa Group count on tracking satisfaction on a regular basis and conducting additional detailed surveys. Thanks to these worldwide surveys, possible starting points for improving customer orientation continuously can be identified.

While Lufthansa, SWISS and Austrian Airlines pursued their own procedures to measure customer satisfaction in the past, this process was harmonized in 2017 with the goal of offering even better service. The Network Airlines' standardized satisfaction tracking was launched in January 2018, which makes the resulting values directly comparable for the first time with regard to questions asked, survey methodology and invitations to participate in surveys. In the second quarter of 2018 the Lufthansa Group adapted the invitation process to the General Data Protection Regulation (GDPR) of the European Union (see page 92 f., Data protection and data security).

Every day, the three Network Airlines establish – by means of online surveys – how satisfied passengers are with the different products and services along the travel chain. The collection of data and reporting are centrally steered at Group level. The team responsible comprises experts from all Network Airlines and is supported in its work by a renowned market research institute. To obtain representative results, the Lufthansa Group ensures that the surveys include all service classes, traffic areas and passenger segments. In addition, complex statistical random sample logic based on monthly updated timetable data ensures that the values generated have both a high level of meaning and statistical stability. The airlines compile the evaluations of individual products and services to formulate satisfaction indices concerning the onboard and ground products, and concurrently generate a higher overall satisfaction index. The departments responsible as well as management receive monthly reports.

The satisfaction ratings allow differentiated insights into how elements such as adaptations in catering, lounge modernizations, new seat concepts, the introduction of new in-flight entertainment systems or changed service sequences influence passenger satisfaction. They can also be used as indicators for implementing improvements of services and products.

In 2017, Lufthansa became the only European airline to receive the Skytrax five-star seal for premium service and top comfort.

In a parallel move and dependent on the relevant target variable (for example satisfaction or recommendation), Lufthansa, SWISS and Austrian Airlines collect data for additional central performance indicators such as the loyalty index. Furthermore, there is the Net Promoter Score (NPS®)[1] which has been generated since 2014 and places the focus on the travel experience as the airlines' central product or service category. Its calculation was also harmonized in 2017 by the three Network Airlines. To establish the NPS®, the airlines continuously survey their customers, asking if they would recommend the company concerned to friends or acquaintances, based on their travel experience.

The fact that the Lufthansa Group continuously improves quality and service was acknowledged numerous times in 2017. In this context, the most prominent of all awards came from British consulting firm Skytrax, which specializes in aviation: it made Lufthansa the first European airline to receive the coveted five-star seal for premium service and top comfort. In the Business Traveller Awards 2017, the Lufthansa Group's Network Airlines also took the first three places in the category "Best airline for business travellers on German and European routes" (see page 115, Prizes and awards).

New programs and services

In 2017/18, the Lufthansa Group again introduced new aircraft, programs and services that are aimed at further improving the travel experience and customer satisfaction along with it.

For example, the new Airbus A350-900 offers passengers more comfort thanks to its wider cabin and its innovative light concept (see pages 29 f. and 54, Balance 2017). Furthermore, Lufthansa is planning to introduce a completely new Business Class when the innovative Boeing 777-9 will join the fleet from 2020, offering optimum sleeping comfort and generous privacy. These improvements will be provided above all by a new seat, which was tested by more than 500 customers during the development process.

SWISS is planning to equip its five Airbus A340-300 aircraft with a new cabin product in 2018 in all three service classes, with First Class resembling the existing cabin aboard the Boeing 777. Austrian Airlines has been integrating the new Premium Economy Class since 2018 aboard all its long-haul aircraft. And at the start of the summer timetable 2018, Eurowings became the first low-cost airline to offer the BIZclass on selected long-haul flights.

1 NPS® – Net Promoter Score, a registered service mark of Bain & Co., Inc., Fred Reichheld and Satmetrix Systems, Inc.

Four questions for JOHANN-PHILIPP BRUNS

Senior Director Customer and Product Strategy, Lufthansa Group

CUSTOMER CENTRICITY AND QUALITY FOCUS ARE CENTRAL VALUES FOR THE LUFTHANSA GROUP. WHAT DO PASSENGERS EXPECT IN THIS RESPECT?

A simple reservation process, a quick check-in, tasty food, reliability and comfort. All these are basic features that our customers expect while traveling. At the top quality level we call this "brilliant basics". This is where we want to get. To do so, we need even stronger customer centricity to remain competitive in the market over the long-term. The travel experience of our guests begins at the moment of inspiration for a journey and does not end at landing. It extends to sharing experiences on social media platforms or using our loyalty program.

CUSTOMER NEEDS CHANGE CONTINUOUSLY. WHAT DOES THIS MEAN FOR THE COMMERCIAL STRATEGY OF THE NETWORK AIRLINES?

Each customer is unique and has a very personal taste. For this reason we have redefined the framework for our strategy under the concept of "New Premium". Today, the notion of "premium" no longer means only champagne and caviar. The decisive element is what a customer perceives as premium. "New Premium" very clearly puts our customers at the center of attention. We are convinced of being able to increase customer satisfaction and loyalty long-term in this way. This adds value to the Lufthansa Group.

WHICH ASPECTS HAVE A PARTICULAR INFLUENCE ON EVALUATIONS OF PRODUCT AND PASSENGER EXPERIENCE?

People appreciate nothing more than personal contact. This will remain the same in a digital world as well. Simplicity is another quality feature. For example, an app that makes my trip easier or a reservation system that takes my personal preferences into account because it already knows them. These are factors that shape the quality of the travel experience. In addition, there is the wish for transparency and self-determination. Therefore, we have identified five areas with which we will particularly align our actions in the future: simplicity, enjoyment, personalization, humanity and consistency.

TO WHAT EXTENT DOES THIS NEW STRATEGIC APPROACH ALSO TAKE SUSTAINABILITY ASPECTS INTO ACCOUNT?

The efficient use of resources has always been a part of our product and service development, and the strategic approach shifts it even more into the focus of our attention. This is another customer need that is gaining more importance. For example, since the middle of 2017 we have used new, more environmentally-friendly tableware on all Lufthansa long-haul flights. We avoid disposable items to a large extent, which reduces waste quantities significantly. The construction of new lounges also involves the latest technologies concerning water and electricity consumption. And since 2007, we have offered our customers voluntary CO_2 compensation for their flights.

Before departure, the passengers of the Group airlines benefit from newly opened lounges and improved services for lounge visitors. An example: on March 5, 2018, the new 650-square-meter SWISS First Lounge in Terminal A at Zurich Airport opened its doors. It offers not only the highest levels of service and comfort, but its construction also involved the latest technology standards concerning water and electricity consumption. Since the beginning of 2018, the Lufthansa Group has implemented a new lounge concept: in the future, new or remodeled lounges will feature more individual designs than is currently the case and offer a "local touch".

On board, Lufthansa has served meals and beverages to its passengers traveling on all intercontinental flights in Economy Class on new tableware since the middle of 2017. The latter features a timeless design and is more environmentally friendly. New materials and the innovative anti-slip coating make serving easier for cabin crews.

Furthermore, the Group airlines continued to expand their services for families during the reporting year. Thus, Lufthansa launched a new platform that pools all family-relevant marketing, communications and campaign activities. SWISS added the Family Check-in in Zurich during vacation periods to its family concept as well as special fares for families and children.

More and more digital services improve the passengers' travel experience from planning to arrival (see page 12 f., Balance 2017). For example, the Lufthansa Group further expands its eJournal offer. Digital baggage services also contribute to traveling in a relaxed manner. Thanks to these, passengers now know where their baggage is at any given time and on which carousel it will be delivered. Since January 2018 there has also been the electronic baggage tag "BAGTAG". After checking in their baggage with the Lufthansa app, passengers can transmit the data from the digital boarding pass to their suitcase with a click on "BAGTAG".

Meanwhile, Lufthansa and the Lufthansa Cargo subsidiary Jettainer have sustainable luggage produced by upcycling: air freight containers, container tarps, freight lashing straps and life jackets withdrawn from service are made into trendy bags produced in limited editions.

FLIGHT SAFETY AND HEALTH PROTECTION

The Lufthansa Group's success depends primarily on safe and reliable flight operations. The health and safety of passengers, crews and employees have the highest priority for the aviation group. Therefore, all Lufthansa Group airlines operate a comprehensive Safety Management System (SMS).

This includes continuous monitoring of flight operations: The Group airlines' experts track performance ratios, carry out audits and inspections, evaluate risks, analyze flight data and investigate incidents. All these measures serve the purpose of identifying and steering safety-relevant trends at an early stage, and guarding against possible undesirable developments. Beyond the legally required reporting systems, the Lufthansa Group operates a low-threshold confidential reporting system that is open to all employees.

With regard to their safety management systems, the Lufthansa Group's airlines take their bearings from legal requirements such as EU guidelines, as well as regulations issued by the European Aviation Safety Agency (EASA) and the U.S. Federal Aviation Administration (FAA). In addition, they fulfill all standards and recommendations of the International Civil Aviation Organization (ICAO). Every two years, independent experts audit the safety standards applied Group-wide in an IATA Operational Safety Audit (IOSA). All Group airlines fully apply the internationally accepted IATA standards for air safety. These external benchmarks are supplemented by the Lufthansa Group with internal guidelines, in particular the Executive Board's Safety Commitment. These guidelines are compiled in the aviation group's Safety Management Manual (SMM) and are additionally included in handbooks concerning flight operations, training, maintenance and ground handling services. The Executive Board and all managers and employees affected by operator regulations fulfill their tasks in accordance with the SMM.

Organization and responsibilities

Within the Lufthansa Group, independent departments monitor compliance with regulations and processes related to flight operations. At every Group airline, the safety management system is the responsibility of a safety manager. The safety manager reports both to the airline's management and to the Group Safety Pilot, who has Group-wide responsibility for evaluating and developing procedures and standards relevant to flight safety. He reports directly to the Chairman of the Executive Board and CEO of Deutsche Lufthansa AG, Carsten Spohr.

Areas of emphasis in 2017

In 2017, the Lufthansa Group began to organizationally merge the areas Security (protection from external hazards) and Safety (safe operations and flight safety), which had been separate entities. Furthermore, the Group concentrated on adapting its safety structures to the new internal matrix organization. In this context, the Company also strengthened the position of the Group Safety Pilot and expanded his authority. On September 1, 2017, Andreas Flaig took over this responsibility from Werner Maas. The new Group Safety Pilot has since initiated several projects aiming at even faster communications about safety-related subjects with employees. At the same time, he strives for innovations that promote the employees' organization-related learning.

Another focus in 2017 was on developing a uniform Group-wide training standard for the dispatchers and transport managers at the Group airlines that includes clear structures and regular courses which employees must attend in person. According to IOSA regulations, airlines have to provide continuing education courses to these employees every three years. In addition, the Lufthansa Group developed a human-factors training unit that addresses individual competencies such as problem-solving abilities, mental flexibility, judgment and decision-making abilities.

Spot check

The Lufthansa Group airlines withdrew the two-person rule in the cockpit in 2017. A comprehensive safety review had shown that this rule, which had been introduced as a precaution after the Germanwings accident in 2015 (see page 74 f., Balance 2016), does not increase safety. The Group airlines also fulfill all requirements of the EU air safety authority EASA that are necessary for the rule's withdrawal. In the meantime, EASA had analyzed the evidence gathered and revised its recommendation in summer 2016. As a result, airlines may now decide themselves if they wish to withdraw or uphold the two-person-cockpit rule.

In addition, on the basis of the revised Air Traffic Act, so-called ADM controls have been carried out at German flight operations since April 21, 2017. The checks, which are independent of suspicion, are applied to pilots before their shifts begin as a sample taken at random. As an additional safety mechanism, pilots selected randomly by an algorithm are checked for the consumption of alcohol, drugs and certain medications.

GERMANWINGS FLIGHT 4U9525

Forever in our memories

Three years after the crash of the Germanwings aircraft on March 24, 2015, the unity between all employees of the Lufthansa Group and the bereaved around the world remains as strong as ever. It is an important concern for the Group to keep alive the memory of the people who lost their lives in the accident that occurred in the Alps in southern France, and to support the next of kin. For this reason, a Post Emergency Organization (PEO) was set up immediately after the crash. It maintains contact with relatives, and coordinates all tasks related to the accident. This includes close coordination with national authorities and local institutions in France.

Relatives continue to receive support in dealing with the effects of the accident through numerous voluntary forms of assistance and can reach contacts within the Company at any time through a Care Center. The Center also organizes visits to the accident location. The continuous, close dialogue with relatives gives those responsible at the PEO a picture of individual needs, so that offers of ongoing assistance can be adapted in accordance with a family member's personal situation, origin, cultural environment and faith. To allow space for mourning, a number of private and public places of remembrance have been created since 2015. They include the commemorative sculpture "Sun Sphere" created by German artist Jürgen Batscheider, which was unveiled in September 2017 at the crash site, and the accompanying sun portal at the visitors' platform on the Col de Mariaud. In the meantime, a space for commemoration and a room for retreat have been set up for relatives in Le Vernet. The latter offers them a place to rest and pause during their visits. It was designed according to the family members' wishes.

Restoring the crash site to its natural condition was concluded in 2015. While soil and water samples continue to be taken regularly at the accident site, no conspicuous results have been observed so far.

The aid fund set up immediately following the crash to support social and cultural projects commemorating the victims (see page 74, Balance 2016) had already supported more than 40 projects by spring 2018. A particular priority is giving support to young people who lost one or both parents in the crash. Independent of claims for damages, an aid fund of more than 5 million euros was made available for them to give financial support for an academic education or professional training in accordance with their preferences and abilities.

The aid fund's board of trustees, in which the relatives have seats and voting rights, decides on all support initiatives.

Cabin air quality

The Lufthansa Group has actively participated in investigating so-called smell events aboard aircraft for many years. In co-operation with national and international authorities, associations, research institutes and manufacturers, the aviation group supports research on the composition of cabin air and its effects on the human body. Over the years, the Group has invested about 2 million euros in investigations and information as well as related projects.

In addition, the Lufthansa Group set up a Cabin Air Quality Review Board as early as 2012, whose members represent flight operations, the Medical Services, Lufthansa Technik, technical operations management and Group occupational safety. This interdisciplinary committee decides which steps and measures are to be taken in this area within the aviation company.

Current studies prove that the air aboard aircraft is innocuous and sometimes even of better quality than in offices. For example, on March 23, 2017 the European Aviation Safety Agency (EASA) presented its final report on a study of cabin air quality aboard commercial wide-body aircraft, in which it continues to draw the conclusion that there is currently no provable correlation between cabin air and health problems. Rather, the air quality on measuring flights was comparable to the air quality found in ordinary indoor spaces, such as classrooms or offices (see page 57, Balance 2017). Earlier measuring sequences yielded the same result (see page 71, Balance 2016).

Special HEPA/carbon filters being tested

Additionally, the Lufthansa Group runs its own process tests with technical adaptations. For example, since May 2016 the aviation company has been testing the use of special HEPA/carbon filters. These cabin air recirculation filters are equipped with an additional layer of activated carbon and are intended to further increase cabin air quality by removing volatile substances and compounds from recirculated air more quickly. Lufthansa has already equipped numerous aircraft of the Airbus A320 family with these filters for test purposes, and analyzes cabin air quality before and after installation. If the filters' performance turns out convincingly, the Lufthansa Group will install them on additional aircraft. Furthermore, the Lufthansa Group is in discussion with a number of manufacturers concerning a total-air filter technology and sensor systems.

"The Lufthansa Group is the only aviation company worldwide to research and monitor the issue of cabin air quality in such a comprehensive manner.

Karl-Hermann Brandes
Vice President Flight Operations Lufthansa Airline

Information booth on cabin air quality addressing flying personnel.

Detailed communications and information

The Lufthansa Group covers the topic of cabin air quality comprehensively in its internal and external media. Experts from the relevant Group departments regularly inform employees in operational areas at different company locations about measurement and research results as well as technical analyses and innovations. The Group has presented the HEPA/carbon filters several times at product stands in Frankfurt and Munich.

Furthermore, cockpit and cabin crew representatives from all flying companies within the Lufthansa Group as well as the airlines' personnel and union representatives met on November 21, 2017 for the first Group-wide Cabin Air Quality (CAQ) Forum in Frankfurt. The goal of this internal event was to provide and exchange information about measures implemented and insights gained so far, as well as on current developments concerning cabin air issues. More CAQ Forums are to take place in the future.

DATA PROTECTION AND DATA SECURITY

The Lufthansa Group companies collect, process and use personal data of customers, shareholders, employees and suppliers on a daily basis. For the business processes of the passenger airlines in particular, the Group depends on personal information about customers. The Lufthansa Group protects and secures all data according to the highest standards.

The secure handling of data is the basis for trusting business relations and an increasingly important factor for the Group's success. In addition, handling personal data in conformity with data protection legislation safeguards the rights of those whose data is involved and protects the Lufthansa Group against violations of legal requirements as well as sanctions, fines and reputational damage that might result from such cases.

Group Data Protection regularly makes employees aware of the importance of data protection.

Guidelines and organizational foundations

The legally required responsibilities are implemented by the Lufthansa Group in an integrated data protection organization on all levels. The department Group Data Protection ensures the application of Germany's Federal Data Protection Act (FDPA) across the entire Lufthansa Group. It familiarizes employees with the law's guidelines and provisions, and regularly conducts data protection audits. In addition, data protection experts advise individual departments concerning the introduction of new systems and the design or change of processes.

The framework for data protection within the Lufthansa Group is provided by the Group Data Protection Guideline which is based on laws such as the EU General Data Protection Regulation (EU-GDPR) and the FDPA as well as recognized principles. It also provides rules that ensure conduct in accordance with data protection requirements across the entire Group, make data protection risks transparent and guard against them. Data protection is the responsibility of the Executive Board member responsible for Finance and Aviation Services of Deutsche Lufthansa AG and the management of the respective Group company. In assuming this responsibility, they are supported by the Corporate Data Protection department. All companies that are required by law to appoint a data protection commissioner have done so. Additionally, data protection coordinators were installed in companies and process areas. The Group Data Protection Commissioner defines and establishes standards, and the required core processes such as guidelines, sample contracts and forms with regard to data protection for the entire aviation group.

Furthermore, the Lufthansa Group has established a notification process for data protection and data security incidents. Complaints and information requests from concerned parties are processed in a timely and comprehensive manner within internally set deadlines. As in 2016, the Lufthansa Group did not record a registrable infringement against data protection in 2017, according to FDPA rules.

International data protection regulations

Data protection regulations in other countries play an increasing role for the Lufthansa Group due to its international operations. Conflicts arise in the airline industry in particular because foreign authorities increasingly request passenger data. However, providing such data would often be contrary to European data protection rules (see page 67, Balance 2015). Since June 2016, the "EU-US Privacy Shield" has regulated data transfers between the EU and the USA (see page 73, Balance 2016, and page 59, Balance 2017).

In the European Union, the new EU General Data Protection Regulation has been in effect since May 25, 2018. The Lufthansa Group adapted its existing data protection management system to this Europe-wide standardized data protection law and carried out related projects necessary for its introduction within those Group companies affected. Nevertheless, individual national deviations from this norm will continue to be in application for the aviation group, such as those concerning the obligations to appoint data protection commissioners and with regard to employee data protection. In the context of her legal supervision function, the Group Data Protection Commissioner will regularly monitor the implementation of the EU-GDPR.

Employee sensibilization and targeted training

The Group Data Protection Commissioner supports employees and managers by means of web-based training programs and comprehensive communication in understanding data protection, its necessity and its principles within the Lufthansa Group. This includes important concepts, the organization of data protection and specific aspects concerning certain areas. The Group Data Protection Commissioner plans the necessary training measures as a recommendation, informs those responsible about their training obligations and supervises – as much as this is technically possible – by means of an automated monitoring system and concrete controls that these training obligations are met.

In 2017, the Lufthansa Group conducted a broadly-designed internal data protection campaign with numerous information events and launched the new web-based training "Principles of data protection according to the EU General Data Protection Regulation" in October. In this way, the Group implements the EU-GDPR's requirement to make employees familiar with the law's regulations. The comprehensively revised training tool replaces all previous web-based training units concerning data protection. It includes a supplementary chapter for special target audiences such as managers, HR staff and employees with customer contact. All employees, and in particular those who work with personal data, must participate in the new training. Additionally, the Group offers specialized trainings online for specific target audiences (see page 72, Balance 2016) and offers continuing education in sessions with required personal presence on the topic of data protection when the need arises.

IT security

The increasing digitalization of business processes within the Lufthansa Group also increases the necessity of prevention against cyber risks (see page 74 f., Annual Report 2017). At the Group level, the department IT Strategy & Security is responsible for implementing requirements concerning data protection and IT security. This includes the development of appropriate concepts and measures such as e-mail encryption, a cyber crime awareness campaign, and protection from criminal activity over the Internet (see page 59, Balance 2017). The risk and security management systems as well as selected measures are regularly checked by internal auditors.

In 2017, the Lufthansa Group again implemented numerous projects in order to meet the increasing risks from information technology with adequate means. Among other initiatives, the Group continued the PROTECT campaign which was launched in fall 2016 and increases the Company's cyber resistance; it was concluded at the end of the first quarter of 2018. The bug bounty program, which was successfully launched at the beginning of 2017 and aims at identifying and removing security vulnerabilities in IT systems with help from invited hackers and research centers, will be continued in 2018 and expanded step by step.

Key points on

SERVICE & INFORMATION

05

95 _ SCOPE OF CONSOLIDATION
96 _ ENVIRONMENTAL / PERSONNEL DATA
102 _ GLOSSARY
106 _ GRI CONTENT INDEX
112 _ EDITORIAL INFORMATION / CONTACT
114 _ OVERVIEW: NOISE STANDARDS
115 _ THE OPERATING FLEET

Notes on the scope of consolidation and methodology for calculating absolute and specific consumption and emissions

↗ GRI 102-45 ↗ GRI 102-48

Scope of consolidation

Reporting on transport performance, kerosene consumption, and emissions from flight operations in 2017 is – unless noted otherwise – based on the following scope of consolidation:

- Lufthansa (including Lufthansa CityLine and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings (including Germanwings), Brussels Airlines and Lufthansa Cargo. Not included are services performed by third parties, as their performance is beyond our control.
- Types of flight service: all scheduled and charter flights.

Methodology of calculations

Kerosene in absolute terms

Kerosene consumption is calculated on the basis of actual flight operations (i.e. using actual load factors and flight routings) according to the gate-to-gate principle. This covers all phases of a flight, from taxiing on the ground to flying detours and holding patterns in the air.

Emissions in absolute terms

The emissions from flight operations are calculated on the basis of actual transport performance and hence on actual load factors and the actual absolute quantity of kerosene consumed in the reporting year. Transport performance is measured in tonne kilometers; i.e., payload transported over a distance. For passengers and their luggage, an average of 100 kilograms is the standard estimate; for freight, it is its scale weight. Each aircraft/engine combination present in the fleet is considered separately, and the associated values are calculated with the aid of computer programs provided by the aircraft and engine manufacturers. The annual average flight profile for each subset of the fleet is then fed into these programs. This allows us to determine emissions in relation to flight altitude, distance flown, thrust, and load. This approach is necessary for nitrogen oxides (NO_X), carbon monoxide (CO), and unburned hydrocarbons (UHC) in particular. Carbon dioxide (CO_2) emissions do not require special calculation methods, as they are generated in a fixed ratio to the quantity of kerosene burned. The combustion of 1 tonne of kerosene generates 3.15 tonnes of CO_2.

Specific consumption and emission values

Calculating specific consumption and emissions entails expressing absolute values in relation to transport performance. For example, the ratio liters per 100 passenger kilometers (l/100pkm) is calculated on the basis of actual load factors along with the quantity of kerosene actually consumed. The distances used in the calculations are great-circle distances. In combination flights (freight and passenger transport in one aircraft), fuel consumption is attributed on the basis of its share of the total payload to calculate the passenger- and freight-specific figures.

Since 2013, the DIN EN 16258 standard has provided a guide for standardized calculation of greenhouse gas emissions for transport processes. This guide uses the same estimates for calculating payload as the Lufthansa Group. When traveled distances are calculated, 95 kilometers must be added to the great-circle distance according to the guidelines of the EU emission allowance trading scheme. The International Air Transport Association (IATA) has separately developed its own calculation proposals, which deal with the division of fuel consumption between freight and passengers and attribute a larger share of fuel consumption to passengers because of the passenger-specific infrastructure. Although this method has no effect on the overall efficiency of a flight, it changes the apportionment between passengers and freight. There are still divergences between the two methods (including from the method used up to now by Lufthansa). We would welcome a standardized, internationally harmonized and accepted method.

Environmental database

The environmental data for this report were compiled by the Lufthansa Group by means of its central environmental database. All Lufthansa Group companies are encouraged to feed their environmentally relevant performance and consumption data (such as fuel consumption) into the Group's environmental database. Data used for the calculation of the Lufthansa Group's carbon footprint (Scope 1 – 3 emissions) were additionally checked by an external auditor for completeness and correctness according to accepted verification standards and verified with High Assurance (Scope 1) and Limited Assurance (Scope 2 and 3) respectively.

Accuracy

For presentation purposes the figures in the charts and tables are rounded. Changes from the previous year's figures and share percentages refer in each case to precise figures, however. For this reason it is possible that a reported value may remain the same from one year to the next even though a relative change is reported. Because of the rounding of share percentages, it is also possible that the sum of their addition may differ from the sum of the unrounded percentages. For example, as a result of rounding, share percentages may not add up to 100 percent even though it would be logical to expect them to.

ENVIRONMENTAL DATA

FUEL CONSUMPTION [1,2]

in tonnes

SPECIFIC FUEL CONSUMPTION OF PASSENGER TRANSPORTATION COMPARED 2017

in liters per 100 passenger kilometers (l/100 pkm)

	2017	2016	Changes in %
Group fleet [2]	3.68	3.85	– 4.5
Lufthansa	3.76	3.88	– 3.2
SWISS	3.19	3.44	– 7.3
Austrian Airlines	3.83	4.04	– 5.2
Eurowings	4.18	4.46	– 6.3
Brussels Airlines	3.62	n.a.	n.a.

FUEL DUMPS [2] 2017

	2017	Changes compared to 2016
Events, total	26	+ 2
of which medical reasons	12	+ 2
technical reasons	11	– 2
other reasons	3	+ 2
Quantity, total [3]	737 t	– 35 %

FUEL CONSUMPTION [1] 2017

in tonnes

	Passengers	Freight	Total	Share
Scheduled flights [2]				
Lufthansa	4,730,854	1,587,438	6,318,291	62.5 %
SWISS	1,157,214	439,511	1,596,725	15.8 %
Austrian Airlines	603,934	96,721	700,654	6.9 %
Eurowings	514,200	1,139	515,339	5.1 %
Brussels Airlines	427,775	59,311	487,086	4.8 %
			9,618,095	95.1 %
Third parties [4]	466,284	8,502	474,786	4.7 %
Other flights [5]			19,327	0.2 %
All flights			**10,112,208**	100.0 %

EMISSIONS [2,6] 2017

in tonnes

	Passengers	± 2016	Freight	± 2016	Total	± 2016
CO_2	23,417,023	+ 6.5 %	6,879,975	+ 5.2 %	30,296,998	6.2 %
NO_x	116,461	+ 9.4 %	34,940	+ 7.3 %	151,402	8.9 %
CO	18,250	+ 14.3 %	3,672	+ 9.7 %	21,922	13.5 %
UHC	1,849	+ 20.3 %	377	+ 9.9 %	2,226	18.4 %

SHARE OF THIRD PARTIES [4,7] 2017

Flights	9.1 %
Passengers	7.8 %
Tonne kilometers transported, TKT (tkm)	4.1 %
Fuel consumption (tonnes)	4.7 %
CO_2 emissions (tonnes)	4.7 %

1 Actual fuel consumption in tonnes from flight operations, based on all flight events under the respective operative flight number. Recorded are consumption values from gate to gate, i.e. including taxiing on the ground, holding patterns and detours in the air. 2 For the reporting year 2017, the following companies have been included in Balance: Lufthansa (including Lufthansa CityLine and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings (including Germanwings), Brussels Airlines and Lufthansa Cargo. Excluding the services of third parties as the Company cannot influence their performance (see table "Share of third parties"). 3 In part projections 4 Airlines outside the scope of consolidation of Balance, but operating services on behalf of Lufthansa, for example in the event of capacity bottlenecks. 5 Ferry flights, special flights, training flights, test flights, aborted flights. 6 Absolute emissions in tonnes resulting from flight operations (all scheduled and charter flights). Recorded are consumption values from gate to gate, i.e. including taxiing on the ground, holding patterns and detours in the air (see notes on page 95). 7 Excludes road feeder services and partial capacity chartered by Lufthansa Cargo, as no fuel consumption and emissions values are available for this performance. 8 On the basis of freight tonne kilometers (FTKT), transported on both cargo and passenger aircraft.

SPECIFIC FUEL CONSUMPTION
PASSENGER TRANSPORTATION LUFTHANSA GROUP

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

3.68

SPECIFIC FUEL CONSUMPTION
PASSENGER TRANSPORTATION LUFTHANSA

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

3.76

SPECIFIC FUEL CONSUMPTION
PASSENGER TRANSPORTATION AUSTRIAN AIRLINES

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

3.83

SPECIFIC FUEL CONSUMPTION
PASSENGER TRANSPORTATION SWISS

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

3.19

SPECIFIC FUEL CONSUMPTION
PASSENGER TRANSPORTATION EUROWINGS

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

4.18

SPECIFIC FUEL CONSUMPTION
FREIGHT TRANSPORTATION [2,8]

in liters/tonne kilometers (l/tkm)

0.268

DIRECT AND INDIRECT CO_2 EMISSIONS OF THE LUFTHANSA GROUP COMPARED

in tonnes

	2017	2016	2015
Scope 1[1]	28,949,145 72.6 %	29,250,821 76.4 %	28,601,347 77.4 %
Scope 2	256,232 0.6 %	275,161 0.7 %	343,438 0.9 %[1]
Scope 3	10,678,859 26.8 %	8,774,231 22.9 %	8,005,651 21.7 %

PASSENGER TRANSPORTATION [2]

CO_2 emissions

in kilograms/100 passenger kilometers (kg/100 pkm) **9.27**

NO_x emissions

in grams/100 passenger kilometers (g/100 pkm) **46.1**

CO emissions

in grams/100 passenger kilometers (g/100 pkm) **7.2**

UHC emissions

in grams/100 passenger kilometers (g/100 pkm) **0.73**

FREIGHT TRANSPORTATION [2, 3]

CO_2 emissions

in kilograms/tonne kilometers (kg/tkm) **0.68**

NO_x emissions

in grams/tonne kilometers (g/tkm) **3.4**

CO emissions

in grams/tonne kilometers (g/tkm) **0.4**

UHC emissions

in grams/tonne kilometers (g/tkm) **0.04**

1 Audited with the result High Assurance without Scope 1 – emissions of the aircraft fleet of Brussels Airlines NV/SA. These were audited by another auditor with the result Limited Assurance and are therefore not shown in this depiction (see page 99). 2 For the reporting year 2017, the following companies have been included in Balance: Lufthansa (including Lufthansa CityLine and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings (including Germanwings), Brussels Airlines and Lufthansa Cargo. Excluding the services of third parties as the Company cannot influence their performance (see table "Share of third parties", page 96). 3 On the basis of freight tonne kilometers (FTKT), transported on both cargo and passenger aircraft.

VERIFICATION STATEMENT SCOPE 1 - 3

verification statement

MÜLLER-BBM
CERT GMBH

Müller-BBM Cert GmbH, accredited verifier DAkkS D-VS-18709-01-01, acceditated and approved for air transportation confirms, that CO_2 emissions data in the submitted Climate Change 2018 CDP final report, and those in figure „Direct and indirect CO_2 emissions of the Lufthansa Group" on page 46 of the sustainable report *Balance*, issue 2018,

LUFTHANSA GROUP

Deutsche Lufthansa AG and affiliates*

under the verification standards

- *EU Emissions Trading Scheme (EU ETS) Directive and EU ETS related national implementation laws*
- *Airport Carbon Accreditation (ACA) des Airports Council International Europe*

are verified with following uncertainties.

Scope 1 28,949,145 t CO_{2eq} (high assurance)**

Scope 2 256,232 t CO_{2eq} (limited assurance)

Scope 3 10,678,859 t CO_{2eq} (limited assurance)

Kerpen, 30 May, 2018

Müller-BBM Cert GmbH

* Scope of application from organizations at CDP-report 2018:
Deutsche Lufthansa AG, Lufthansa Cargo AG, Lufthansa Technik AG, Lufthansa CityLine GmbH, Swiss International Air Lines AG, Edelweiss Air AG, Austrian Airlines AG, Air Dolomiti S.p.A Linee Aeree Regionali Europee, Germanwings GmbH, Eurowings Aviation GmbH, Eurowings Europe GmbH, Brussels Airlines NV/SA, LSG Lufthansa Service Holding AG, Lufthansa AirPlus Servicekarten 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

** Without scope 1 – emissions of aircraft fleet of Brussels Airlines NV/SA.
They where audited by another auditor with the result limited assurance.

Müller-BBM Cert GmbH
Robert-Koch-Straße 11
D-82152 Planegg
Telefon +49 (0)89 85 602 0 | Fax +49 (0)89 85 602 111
info@MuellerBBM-Cert.de | www.MuellerBBM-Cert.de

MBBM
MÜLLER-BBM GRUPPE

PERSONNEL DATA

EMPLOYEES IN TOTAL[1]

Lufthansa Group, employees
as of December 31, respectively

NUMBER OF EMPLOYEES BY PROFESSIONAL GROUP AND GENDER[1]

Lufthansa Group, employees as of December 31, 2017

DISTRIBUTION OF EMPLOYEES

Lufthansa Group, employees as of December 31, respectively

	2017	2016	Change
Group employees	129,424	124,306	+ 4.1 %
of which Network Airlines[4]	50,190	49,984	+ 0.4 %
of which Point-to-Point Airlines[5]	7,501	3,493	+ 114.7 %
of which Logistics	4,511	4,568	– 1.2 %
of which MRO	21,502	20,839	+ 3.2 %
of which Catering	34,563	35,530	– 2.7 %
of which Additional Businesses and Group Functions[4]	11,157	9,891	+ 12.8 %

JOB THROUGHOUT THE WORLD

Lufthansa Group, employees as of December 31, 2017

PART-TIME EMPLOYMENT[6]

Lufthansa Group, in percent as of December 31, respectively

AVERAGE AGE [7]

Lufthansa Group, in years **as of December 31, respectively**

AGE STRUCTURE [7]

Lufthansa Group, in percent **as of December 31, 2017**

SHARE OF WOMEN IN MANAGEMENT POSITIONS

Lufthansa Group, in percent **as of December 31, respectively**

SHARE OF WOMEN WITH STAFF RESPONSIBILITY

Lufthansa Group, in percent **as of December 31, respectively**

1 Scope of application: Group scope of consolidation; calculation according to HGB guidelines (without board members, including temporary workers, including employees with Lufthansa employment contracts at other companies). 2 Without apprentices 3 Consists of cockpit and cabin. 4 Previous year's figures adapted due to restructuring of business segments. 5 The business segment "Point-to-Point Airlines" was renamed "Eurowings Group" in the first quarter of 2018. 6 Scope of application: Group scope of consolidation; shares in percent; part-time including age-related part-time (sabbatical blocks included); from 2014 including Aerologic (partially consolidated at 25%). 7 Scope of application: Group scope of consolidation, without parts of LSG abroad, LH Malta Aircraft-Leasing Ltd., time:matters GmbH, time:matters Spare Parts Logistics GmbH, time:matters Holding GmbH, LH Technik Philippines Inc., LH Technik Puerto Rico LLC, LH Technik Shannon Ltd. Co., LH Technik Malta Ltd., LH Technik Airmotive Ireland Leasing Ltd. Co., LH Technik Budapest Repülögeb, Hawker Pacific Aerospace (US), Aerologic GmbH (25 percent partially consolidated), LH Technik Landing Gear Services UK Ltd., BizJet International Sales & Support Inc., LH Technik North America Holding Corp., LH Technik Sofia OOD, LH Technik Component Services LLC, LH Malta Holding Ltd., LH Malta Corporate Finance Ltd., LHAMIH LIMITED, LH Malta Finance Holding Ltd.

GLOSSARY

A

Aerosols
Aerosols are solid and/or liquid particles that are suspended in the air. They reach the atmosphere by means of natural processes (wind, desert storms, volcanic eruptions) or human activities (combustion of biomass and fossil fuels). The most important aerosols are mineral dust, sea salt, cellular (biological) particles, soot, organic compounds, and sulfates. From a climatic perspective, aerosols are the opponents of greenhouse gases, as they can reflect incident light and thus have a cooling effect.

aireg e. V. –
Aviation Initiative for Renewable Energy in Germany
aireg is a registered association of leading German research institutions, the Lufthansa Group and other companies in the aviation industry, and bioenergy producers. The goal of this initiative, which was founded in 2011, is to advance the development and introduction of regenerative aviation fuels in Germany and to inform the public at large about this topic.
↗ **www.aireg.de**

ATM – Air Traffic Management
Air traffic management ensures both the safe and the efficient movement of aircraft in all phases of operations.

Atmosphere
Mass of air surrounding the Earth. It is divided into various layers, which are separated from one another by significantly different vertical temperature distributions. Important for air traffic are the two lower layers: the troposphere and, above it, the stratosphere. The troposphere's upper boundaries vary depending on season and latitude. They lie at altitudes of 16 to 18 kilometers above sea level at the equator, and at eight to 12 kilometers above sea level at the poles. The temperature in the tropopause, the transition layer between troposphere and stratosphere, drops to about minus 60 degrees Celsius. It rises again in the stratosphere.

C

Carbon dioxide (CO_2)
Gas resulting in nature from the burning or decomposition of organic substances (e.g. plant material). The greenhouse gas CO_2 remains in the atmosphere for about 100 years. Scientists attribute the increase in atmospheric CO_2 over the last 100 years to the burning of fossil fuels (e.g. coal, oil, natural gas) by humans. Per tonne of fuel, 3.15 tonnes of CO_2 result from the combustion process. Currently, about 2.69 percent of the CO_2 emissions due to human activities are caused by global air traffic. (Source: International Energy Agency (IEA) 2017, 2015 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.

CDP (previously Carbon Disclosure Project)
The CDP is an independent nongovernmental organization with a current membership of more than 800 institutional investors worldwide. Every year this initiative, which was founded in 2000, gathers data and information on CO_2 emissions, climate risks as well as reduction goals and strategies on a voluntary basis from corporations and organizations on behalf of investors by means of standardized questionnaires. In 2017, 6,300 companies and organizations published their greenhouse gas emissions and other environmentally relevant performance ratios in this way. Today, CDP administers the world's largest database of its kind. Investors use this data to assess long-term opportunities and risks for the companies in their portfolios, to determine their investment strategy and to develop investment products and indices. ↗ **www.cdp.net**

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.

CO – see "Carbon monoxide"

CO_2 – see "Carbon dioxide"

D

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.

Diversity
In a corporate context, diversity refers to all characteristics that distinguish employees from one another. Diversity offers approaches for handling human differences for the benefit of company and employees alike.

E

EBIT
Financial indicator; it denotes earnings before interest and taxes. From financial year 2015 it has been used as the central earnings indicator. It is calculated from total operating income minus operating expenses plus the result from equity investments.

EMAS – Environmental Management and Audit Scheme
European regulations concerning environmental management and certification; colloquially referred to as EU eco-audit regulations.

Equivalent continuous noise level (Leq)
The Leq is a measure for the energetic average of all sound pressure levels over a defined period of time. All sound events that differ in intensity and duration are summarized according to mathematical rules. The resulting average value is an accepted and proven measurement of the noise quantity occurring over an observed time interval.

F

Freight performance (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 permissible 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 4 to 8 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 vales and forms a fine mist behind the aircraft. So far, no contamination has been detected in plant or soil samples after fuel dumps.

G

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.

Greenhouse gases
Gaseous substances that contribute to the greenhouse effect and have both natural and human (anthropogenic) causes. The most important natural greenhouse gases are water vapor (H_2O), carbon dioxide (CO_2), and methane (CH_4); the most important anthropogenic greenhouse gases are carbon dioxide from the combustion of fossil fuels and methane, primarily

from agriculture and industrial livestock farming. Other artificial greenhouse gases are nitrous oxide (N_2O), fluorocarbons (FCs and HFCs), sulfur hexafluoride (SF_6), and chlorofluorocarbons (CFCs).

H

Hub
In air transport, a hub is a central traffic point or an airline's transfer airport. Passengers and freight are transported from their point of departure to one of the airline's "home airports" (hub). From there, they are carried to their destination by a second flight alongside passengers and freight from other departure points, but with the same destination.

I

IATA – International Air Transport Association
The umbrella organization of international commercial aviation. ↗ www.iata.org

ICAO – International Civil Aviation Organization
A United Nations agency that develops internationally binding norms for civil aviation. ↗ www.icao.int

ILO standards
Work standards of the International Labor Organization, which include, among others, the bans on child labor, forced labor, and discrimination as well as the fundamental right of freedom of association for employees.

ISO 14001 –
International environmental management system
Companies thereby receive an effective instrument that allows them to take environmental aspects into consideration in decisions relating to corporate policies and to continuously improve the situation of environmental care in relation to all daily tasks. ↗ www.iso.org

M

MRO
Acronym standing for maintenance, repair, and overhaul of aircraft.

MTOW
Acronym standing for maximum takeoff weight of an aircraft.

N

Nitrogen oxides (NO_x)
Chemical compounds consisting of one nitrogen and several oxygen atoms. NO_x is defined as the sum of NO and NO_2 compounds. Natural sources include lightning and microbes in the soil. Nitrogen oxides are also generated in combustion processes under high pressures and temperatures. Both of these parameters have been increased in modern aircraft engines to significantly reduce fuel consumption as well as emissions of carbon monoxide and unburned hydrocarbons. However, future combustion chambers of an advanced design could help reduce NO_x emissions by 85 percent. Air traffic contributes 2 to 3 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.

Noise-related charges
Airports charge noise-related fees in the context of their tariffs. These reward airlines for operating quiet aircraft, while there are significant surcharges for noisy aircraft. In Europe, noise-related charges have become an important noise reduction instrument for areas surrounding airports.

NO_x – see "Nitrogen oxides"

O

OHSAS 18001 –
Occupational Health and Safety Assessment Series
Job safety management system developed by the British Standards Institution in cooperation with international certification organizations.

Ozone
Molecule formed in the stratosphere and consisting of three oxygen atoms. The ozone layer located in the stratosphere has an important protective function, as it absorbs harmful ultra-violet light. While ozone at higher altitudes is broken down massively by chlorofluorocarbons (CFCs), it develops close to the ground under the influence of sunlight from numerous

precursor substances (summer smog) and irritates the mucous membranes. At current levels, nitrogen oxide emissions from air traffic at cruising altitudes cause an increase in atmospheric ozone, analogous to the generation of summer smog, estimated by scientists at 3 to 4 percent on the heavily-flown North Atlantic routes.

P

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).

S

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

T

Tonne kilometer (TKT/ TKO)
Measure of transport performance (payload multiplied by distance). A distinction is made between available transport 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.

U

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

W

Water vapor
The most important greenhouse gas, even ahead of carbon dioxide. Without water vapor from natural sources, the Earth's surface would be around 22 degrees Celsius cooler. This makes water vapor responsible for two-thirds of the natural greenhouse effect (33 degrees Celsius). For each kilogram of kerosene burned, 1.24 kilograms of water vapor are released. Concerns that air traffic might increase the concentration of water vapor in the stratosphere and thus change the climate have been refuted by scientific research. The German Aerospace Center (DLR) concluded that even a one hundred-fold increase in the quantity of water vapor emitted by air traffic would not result in a detectable climatic signal.

GRI CONTENT INDEX

↗ GRI 102-55

This report has been prepared in accordance with the GRI Standards: Core option and was submitted to the GRI before publication to have the GRI Materiality Disclosures Service applied. The correct placement of the "Materiality Disclosures" 102-40 to 102-49 within the report and in the GRI content index were confirmed by the GRI.

GRI STANDARD	DISCLOSURE TITLE	PAGE NUMBER AND / OR URL / EXPLANATION
GRI 101: Foundation 2016		
GRI 102: General Disclosure 2016		
Organizational profile		
GRI 102-1	Name of the company	Deutsche Lufthansa AG
GRI 102-2	Activities, brands, products, and services	page 4 f.
GRI 102-3	Location of headquarters	Deutsche Lufthansa AG is filed in the Commercial Register of Cologne District Court under HRB 2168 and has its headquarters in Cologne, Germany. The majority of Group functions are located in Frankfurt and Munich.
GRI 102-4	Location of operations	page 4 f. The airports served by Lufthansa Group airlines during the reporting year are located in 100 countries. For important locations pertaining to the service companies see Annual Report 2017, pages 57 and 60.
GRI 102-5	Ownership and legal form	Annual Report 2017, page 10 The shareholder structure, updated quarterly, can be accessed at: www.lufthansagroup.com/investor-relations
GRI 102-6	Markets served	page 4 f. Annual Report 2017, page 21 ff. Given their materiality, the information presented in the sustainability report refer to the worldwide route network of the Lufthansa Group airlines.
GRI 102-7	Scale of the company	page 2, page 4 Annual Report 2017, overview of performance indications, front cover page. For the Group consolidated balance sheet see page 104 f.
GRI 102-8	Information on employees and other workers	page 100 f. No separation by gender and by region, as this data is not control relevant. No description of staff by employees and staff subject to directives, and no indication of the share recognized as permanent freelance employees, and employees and staff subject to directives of contractual partners.
GRI 102-9	Supply chain	page 8 f., page 31 In this report, the primary focus is on the product "flying" without upstream and downstream processes.
GRI 102-10	Significant changes to the organization and its supply chain	page 1
GRI 102-11	Precautionary Principle or approach	The management of opportunities and risks is integrated in all business processes, see Annual Report 2017, page 64 ff. In order to meet its corporate responsibility as a large, globally-active company, the Lufthansa Group extended the scope of its risk management system in 2017 to effects of non-financial aspects on external stakeholders.
GRI 102-12	External initiatives	page 27 An overview of the most important, voluntarily supported initiatives can be accessed at: www.lufthansagroup.com/responsibility
GRI 102-13	Membership of associations	An overview of the most important memberships can be accessed at: www.lufthansagroup.com/responsibility

GRI STANDARD	DISCLOSURE TITLE	PAGE NUMBER AND / OR URL / EXPLANATION
Strategy		
GRI 102-14	Statement from senior decision-maker	page 3
GRI 102-15	Key impacts, risks, and opportunities	Annual Report 2017, page 64 ff.
Ethics and integrity		
GRI 102-16	Values, principles, standards, and norms of behavior	page 28 f. The Executive Board of Deutsche Lufthansa AG adopted a Code of Conduct in 2017 that serves as a basis for the Lufthansa Group's value system. It is binding for all bodies, executives and employees of the Lufthansa Group.
Governance		
GRI 102-18	Governance structure	Annual Report 2017, S. 13 The assignment of responsibilities for business areas within the Executive Board did not change in comparison with the preceding year. Further committees with regard to economic, ecological and social subjects are on page 20, page 40, page 63 and page 72.
Stakeholder engagement		
GRI 102-40	List of stakeholder groups	page 22
GRI 102-41	Collective bargaining agreements	page 68 In Germany, almost all companies are subject to collective agreements (close to 100 percent). For the entire Lufthansa Group this statement is not possible at the moment.
GRI 102-42	Identifying and selecting stakeholders	page 22, page 24
GRI 102-43	Approach to stakeholder engagement	page 22, page 24
GRI 102-44	Key topics and concerns raised	page 22, page 24 The Lufthansa Group considers the results of passenger satisfaction surveys as confidential information. Balance 2017, page 19 ff.
Report profile		
GRI 102-45	Entities included in the consolidated financial statements	page 95 Annual Report 2017, page 174 A list of major subsidiaries, joint arrangements and associated companies can be found in the Annual Report, page 189 ff.
GRI 102-46	Defining report content and topic Boundaries	page 24 Balance 2017, page 19 ff. Balance 2016, page 22 ff.
GRI 102-47	List of material topics	page 24 Balance 2017, page 19 ff. Balance 2016, page 22 ff.
GRI 102-48	Restatements of information	page 95 For the reporting year 2017, the company Brussels Airlines was included for the first time.
GRI 102-49	Changes in reporting	page 24
GRI 102-50	Reporting period	page 1
GRI 102-51	Date of most recent report	page 1
GRI 102-52	Reporting cycle	page 1
GRI 102-53	Contact point for questions regarding the report	page 113
GRI 102-54	Claims of reporting in accordance with the GRI Standards	page 1, page 106
GRI 102-55	GRI Content Index	page 106 ff.
GRI 102-56	External assurance	page 99 In this report, the Scope 1-3 emissions data were subjected to an external audit. In addition, for the first time the Lufthansa Group published a combined non-financial report for the financial year 2017 in its Annual Report. This combined non-financial report was the subject of a voluntary limited assurance engagement in accordance with ISAE 3000 (revised). The management approaches and concepts published in it were adopted for this report and complemented with supplementary information.

GRI STANDARD	DISCLOSURE TITLE	PAGE NUMBER AND / OR URL / EXPLANATION
Material Topics		
Economic performance		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 19 ff. Annual Report page 16 ff.
GRI 201: Economic performance 2016		
GRI 201-1	Direct economic value generated and distributed	page 2 Annual Report 2017, notes to the consolidated financial statements, page 108 ff.
Anti-corruption		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 28 ff.
GRI 205: Anti-corruption 2016		
GRI 205-1	Operations assessed for risks related to corruption	page 30
GRI 205-2	Communication and training about anti-corruption policies and procedures	page 29 No further breakdown available.
Sustainable innovation, research and development		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 36 f. The Lufthansa Group and its subsidiaries, both individually and across business segment boundaries, continuously work on product innovations as well as research and development projects.
Energy		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 39 ff., page 43 ff., page 54
GRI 302: Energy 2016		
GRI 302-1	Energy consumption within the organization	page 96 f. In line with the aspect of materiality, the product of "flying" is primarily considered without upstream and downstream processes. Therefore, the focus of reporting is on the fuel consumption and CO_2 emissions of the Lufthansa Group airlines. In addition, there is comprehensive reporting on the participation in the CDP climate change report, see: www.cdp.net
GRI 302-3	Energy intensity	page 95 The performance indicator for carrying a passenger over a distance of 100 kilometers is: liters per 100 passenger kilometers (l/100 pkm).
GRI 302-4	Reduction of energy consumption	page 51 ff.
GRI 302-5	Reductions in energy requirements of products and services	page 43 ff. The Lufthansa Group increased the fuel efficiency (l/100 pkm) by 4.5 percent compared to 2016.
Emissions		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 43 ff.
GRI 305: Emissions 2016		
GRI 305-1	Direct (Scope 1) GHG emissions	page 46, page 98
GRI 305-2	Energy indirect (Scope 2) GHG emissions	page 46, page 98
GRI 305-3	Other indirect (Scope 3) GHG emissions	page 46, page 98

GRI STANDARD	DISCLOSURE TITLE	PAGE NUMBER AND / OR URL / EXPLANATION
GRI 305-4	GHG emissions intensity	page 44 f. Values for specific CO_2 emissions in kilograms per 100 passenger kilometers (kg/100 pkm)
GRI 305-5	Reduction of GHG emissions	page 51 ff.
Supplier Environmental Assessment		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 31 An evaluation of the management approach is planned in the medium term.
GRI 308: Supplier Environmental Assessment 2016		
GRI 308-1	New suppliers that were screened using environmental criteria	page 31
Active noise abatement		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 57 ff.
	Number of aircraft that meet or exceed the 10-dB criterium of the ICAO Chapter 4 standard.	page 114
Employment		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 61 ff.
GRI 401: Employment 2016		
GRI 401-3	Parental leave	The compatibility of work and private life is an important element for the Lufthansa Group to provide long-term support to employees to maintain their ability to work and perform. During the reporting year, 28.6 percent of the Lufthansa Group's employees worked part-time, 72.9 percent of whom were women. Furthermore, numerous employees took family leave. A nuanced analysis of return rates is currently not yet possible, but is targeted for the future.
Labor / management relations		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 68 f.
GRI 402: Labor / management relations 2016		
GRI 402-1	Minimum notice periods regarding operational changes	In accordance with the stipulations of Industrial Relations Law and in the sense of an active social partnership, the responsible bodies of code-termination and the Company's publics are informed at an early stage.
	Engagement Index (EI)	page 69
	Leadership Index (LI)	page 69
Occupational health and safety		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 72 f.
GRI 403: Occupational health and safety 2016		
GRI 403-1	Workers representation in formal joint management–worker health and safety committees	page 72 In Germany, work protection committees that include representatives of employees and employer are active at all relevant locations of the Lufthansa Group. They jointly optimize processes and agree on measures to improve work protection. All employees in Germany are represented in work protection committees.

GRI STANDARD	DISCLOSURE TITLE	PAGE NUMBER AND / OR URL / EXPLANATION
GRI 403-4	Health and safety topics covered in formal agreements with trade unions	page 72 Occupational safety is regulated in Germany by the Occupational Health and Safety Act and other legal stipulations. Within the Lufthansa Group, occupational safety is regulated within the Company's own responsibility and in cooperation between the divisions Occupational Safety and Corporate Medical Services, and the employees' representations. Employment agreements were concluded concerning a number of subjects. The continued evolution in this area is ensured. The Medical Services and occupational safety provide comprehensive advice to employer and employee representations, for example in the context of implementing legal requirements or concluding collective agreements. They represent the employee representations in numerous health-related committees of the different Lufthansa companies.
	Health Index	page 73
Training and education		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 70 f.
GRI 404: Training and education 2016		
GRI 404-3	Percentage of employees receiving regular performance and career development reviews	page 70 f.
Diversity and equal opportunity		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 62 ff.
GRI 405: Diversity and equal opportunity 2016		
GRI 405-1	Diversity of governance bodies and employees	page 64 f., page 100 f. The composition of the governance bodies is monitored with regard to the share of women and used for targeted control. An extension of this view to further diversity criteria, such as age and internationality, is planned as a perspective for management positions and the Executive Board / top management. Further differentiation is currently not control relevant for the Lufthansa Group.
GRI 405-2	Ratio of basic salary and remuneration of women to men	page 65
Freedom of association and collective bargaining		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 68 f.
GRI 407: Freedom of association and collective bargaining 2016		
GRI 407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	For the reporting year it is assumed that no business activity of the Lufthansa Group posed a risk for the employees' free exercise of their rights concerning the freedom of association and collective bargaining.
Human Rights Assessment		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 25, page 28 ff. An evaluation of the management approach is planned in the medium term.
GRI 412: Human Rights Assessment 2016		
GRI 412-1	Operations that have been subject to human rights reviews or impact assessments	page 30

GRI STANDARD	DISCLOSURE TITLE	PAGE NUMBER AND / OR URL / EXPLANATION
Supplier Social Assessment		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 31 An evaluation of the management approach is planned in the medium term.
GRI 414: Supplier Social Assessment 2016		
GRI 414-1	New suppliers that were screened using social criteria	page 31
Customer health and safety		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 88 ff.
GRI 416: Customer health and safety 2016		
GRI 416-1	Assessment of the health and safety impacts of product and service categories	page 88 ff.
Customer Privacy		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 92 f.
GRI 418: Customer Privacy 2016		
GRI 418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	In 2017 the Lufthansa Group did not record a reportable violation of data protection as defined by Germany's Federal Data Protection Act.
Service and customer centricity		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 84 ff.
Corporate citizenship		
GRI 103: Management approach 2016		
GRI 103-1, GRI 103-2, GRI 103-3	Explanation of the material topic and its Boundary / The management approach and its components / Evaluation of the management approach	page 74 ff. An evaluation of the management approach and the development of KPIs are planned in the medium term.

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Lufthansa Group Communications
Corporate Responsibility Communications & Events
Director: Susanne Kotysch

Steffen Milchsack
Claudia Walther

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Note
The terms Lufthansa Group, Group, Aviation Group, Company, and aviation company are used synonymously in this report.

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CONTACT

Deutsche Lufthansa AG
Lufthansa Group Communications
Susanne Kotysch
Head of Corporate Responsibility Communications & Events
FRA CI/B
Lufthansa Aviation Center
Airportring
D-60546 Frankfurt/Main
balance@dlh.de

Please note that ↗ **www.lufthansa.com** is the central contact point for all inquiries concerning customer service. Under the header "Help & Contact" you will find full information on how to contact Lufthansa.

You will find further information on sustainability within the Lufthansa Group at:
↗ **www.lufthansagroup.com/responsibility**

Order your copy of our Annual Report 2017:
↗ **www.lufthansagroup.com/investor-relations**

MOST STRINGENT NOISE STANDARDS FOR THE LUFTHANSA GROUP'S FLEET

MARGINS BELOW THE NOISE LIMIT OF ICAO CHAPTER 3 AND CHAPTER 4

Active fleet of the Lufthansa Group on October 27, 2017, in EPNdB

* New ICAO Chapter 4 limit, which has been effective for new aircraft since 2006: – 10 EPNdB when compared to Chapter 3.

LH = Lufthansa, Lufthansa Cargo CL = Lufthansa CityLine EW = Eurowings
4U = Germanwings EN = Air Dolomiti LX = SWISS

The Lufthansa Group determines the effect of fleet modernization concerning noise abatement by means of the performance indicator "number of aircraft that meet or exceed the minus-10dB criterium set by the ICAO Chapter 4 standard". This standard defines noise limits and stipulates that all aircraft newly licensed from 2006 to the end of 2017 must cumulatively fulfill the older Chapter 3 noise limits by a margin of 10 decibels or more. This so-called "minus-10EPNdB criterium" (Effective Perceived Noise dB) is signified by the vertical broken line in the overview to the left. In 2017, 99.5 percent of the aircraft – thus virtually the entire operational Group fleet – met this criterium.

The limits depend on the aircraft's maximum takeoff weight and number of engines. The bar chart indicates the sum of the differences between the measured value and the threshold value at the three measuring points by type of aircraft (cumulated margin). Where necessary, the values based on the reduced maximum takeoff weight prevailing in flight operations are indicated. The individual noise certificate data of all Group aircraft is included in the evaluation methodology. Different versions of an aircraft and its engines by year of construction are thus better taken into account. Accordingly, the value ranges from the lowest to the highest cumulated margin are indicated for many fleets. The analysis also takes into account any modifications to aircraft or engines that have been made in the meantime, thereby leading to modified noise data and cumulated margins in certain cases. Furthermore, additions and withdrawals in individual fleets lead to changes in the value ranges reported.

The data to calculate the indicator is gathered on the qualifying date "end of summer timetable", starting in the reporting year 2017. Due to seasonal requirements, the fleet is largest at this point, which makes the measurement of the largest noise-related "footprint" possible. Accordingly, all aircraft in the possession of the individual flight-operating companies at the qualifying date are taken into account for the calculation of the performance index. Simultaneously, the rounding of intermediary values was adapted to the ICAO's systematology, so that there are changes of +/- 0.1 for individual fleets compared with the previous year.

Grouping of aircraft types according to MTOW (maximum takeoff weight): • under 50 t • 50 to 150 t • more than 150 t
This division generally corresponds to a grouping of regional, continental, and intercontinental aircraft.

OS = Austrian Airlines SN = Brussels Airlines
WK = Edelweiss Air

THE OPERATING FLEET OF THE LUFTHANSA GROUP[1]

AS OF DECEMBER 31, 2017

Lufthansa and regional partners

Airbus A380-800 LH: 14 aircraft, 509 seats, 12,400 km range

Boeing 747-8 LH: 19 aircraft, 364 seats, 13,000 km range

Boeing 747-400 LH: 13 aircraft, 371 seats, 11,850 km range

Airbus A340-600 LH: 17 aircraft, 297 seats, 12,900 km range

Airbus A350-900 LH: 6 aircraft, 293 seats, 12,650 km range

Airbus A340-300 LH: 12 aircraft, 283 seats, 11,800 km range
CL: 6 aircraft, 300 seats, 11,500 km range

Airbus A330-300 LH: 19 aircraft, 236 seats, 9,850 km range

Airbus A321-100/200 LH: 63 aircraft, 200 seats, 2,600 km/4,150 km range

Airbus A320neo LH: 10 aircraft, 180 seats, 3,000 km range

Airbus A320-200 LH: 67 aircraft, 168 seats, 3,200 km range

Airbus A319-100 LH: 30 aircraft, 138 seats, 3,350 km range

Embraer 195 CL: 6 aircraft, 120 seats, 2,300 km range
EN: 11 aircraft, 120 seats, 2,300 km range

Embraer 190 CL: 9 aircraft, 100 seats, 3,500 km range

Bombardier CRJ900 CL: 35 aircraft, 90 seats, 2,100 km range

SWISS and Edelweiss Air

Boeing 777-300ER LX: 8 aircraft, 340 seats, 13,650 km range

Airbus A340-300 LX: 7 aircraft, 219 seats, 13,000 km range

Airbus A330-300 LX: 14 aircraft, 236 seats, 9,850 km range

Airbus A321-100/200 LX: 9 aircraft, 219 seats, 2,100 km range

Airbus A320-200 LX: 21 aircraft, 180 seats, 2,700 km range

Airbus A319-100 LX: 5 aircraft, 138 seats, 3,350 km range

LEGEND

LH = Lufthansa, Lufthansa Cargo
4U = Germanwings
CL = Lufthansa CityLine
EN = Air Dolomiti
EW = Eurowings
LX = SWISS
OS = Austrian Airlines
SN = Brussels Airlines
WK = Edelweiss Air

Range indicated in general with maximum number of passengers or payload, respectively.
In part, different versions are in operation.

1 Operated by companies of the Lufthansa Group.

Bombardier CS300 LX: 7 aircraft, 145 seats, 4,250 km range

Bombardier CS100 LX: 8 aircraft, 125 seats, 2,850 km range

Airbus A340-300 WK: 2 aircraft, 314 seats, 11,850 km range

Airbus A330-300 WK: 2 aircraft, 315 seats, 10,000 km range

Airbus A320-200 WK: 8 aircraft, 174 seats, 4,050 km range

Austrian Airlines

Boeing 777-200ER OS: 5 aircraft, 308 seats, 12,100 km range

Boeing 767-300ER OS: 6 aircraft, 214 seats, 10,250 km range

Airbus A321-100/200 OS: 6 aircraft, 200 seats, 2,600 km/4,150 km range

Airbus A320-200 OS: 23 aircraft, 168 seats, 4,100 km range

Airbus A319-100 OS: 7 aircraft, 138 seats, 3,350 km range

Embraer 195 OS: 17 aircraft, 120 seats, 2,300 km range

Fokker 100 OS: 1 aircraft, 100 seats, 2,100 km range

Bombardier Q400 OS: 18 aircraft, 76 seats, 1,350 km range

Eurowings and Germanwings

Airbus A320-200 EW/4U: 44 aircraft, 180 seats, 4,000 km range

Airbus A319-100 EW/4U: 43 aircraft, 150 seats, 2,900 km range

Brussels Airlines

Airbus A330-300 SN: 6 aircraft, 288 seats, 7,700 km range

Airbus A330-200 SN: 4 aircraft, 264 seats, 10,400 km range

Airbus A320-200 SN: 12 aircraft, 180 seats, 3,700 km range

Airbus A319-100 SN: 22 aircraft, 141 seats, 3,200 km range

Lufthansa Cargo

Boeing MD-11F LH: 12 aircraft, 89.4 t, 6,700 km range

Boeing 777F LH: 5 aircraft, 103 t, 8,900 km range

PRIZES AND AWARDS 2017/18

Every year, the Lufthansa Group and its subsidiaries receive numerous prizes and awards. Here is a selection:

2017

- Carsten Spohr is named "Manager of the year 2017". Germany's "manager magazin" honored the Chairman of the Executive Board and CEO of Deutsche Lufthansa AG for his successful restructuring of Europe's largest aviation group.
- Lufthansa became the only European airline to be awarded the five-star seal by Skytrax for premium service and top levels of comfort.
- In a Skytrax survey, 18 million passengers selected Lufthansa as Europe's best airline. The airlines of the Lufthansa Group received a total of four of the renowned Skytrax World Airline Awards.
- In the context of the World Airports Awards 2017 of London-based Skytrax Institute, Terminal 2 at Munich Airport was elected the best passenger facility worldwide. Terminal 2 is operated by Flughafen München GmbH and Deutsche Lufthansa AG in a ratio of 60:40.
- At the Business Traveller Awards 2017, SWISS, Austrian Airlines and Lufthansa took first, second and third prize in the category "Best Airline for Business Travellers on German and European Routes". Furthermore, the readers of Business Traveller put SWISS in second place in the category "Best Airline for Business Travellers on Worldwide Routes". And ↗ **www.lufthansa.com** won the first prize in the category "Best Internet Offer for Business Travellers".
- At the ceremony of National Tourism Awards in China, Lufthansa Group airlines won three prizes: Lufthansa was honored as "Best European airline", while SWISS received the prize for "Best Economy Class". Austrian Airlines won in the category "Best Onboard Service".
- For its mobile self-services, Lufthansa received the Fast Travel Platinum Award of the International Air Transport Association (IATA). The Fast Travel program's goal is to make passenger travel more pleasant and to reduce waiting times.
- The Lufthansa Innovation Hub was honored by business magazine "Capital" as Germany's best innovation laboratory. The underlying study compared 34 German digital laboratories and accelerators.
- SWISS has borne the label "Friendly Work Space" since 2015. In 2017, the airline was recertified accordingly.
- The apprentice workshop of Austrian Airlines was honored with the amaZone Award in the category "Large Corporations". This award is given to companies that give particular support to women enrolled in apprenticeships for technical professions and skilled trades.
- The SESAR project iStream, in which Lufthansa and SWISS participated together with others, received the IHS Jane's ATC Award in the category "Enabling Technology".
- The SESAR project Optimized Descent Profile (ODP), in which Lufthansa and SWISS participated together with others, was honored with the IHS Jane's ATC Award in the category "Environment".
- The demonstration project Augmented Approaches to Land (AAL), in which Lufthansa and SWISS participated together with others, won the Single European Sky Award 2017 in the category "Innovation and Technology".
- Lufthansa Cargo was rated by DHL Global Forwarding with four "green aircraft" as preferred carrier and awarded the GoGreen Carrier Certificate.
- Lufthansa Cargo's project "OMEGA – CO_2 Reduction on the Basis of Big Data" won the German Award for Excellence given by DQS in the category "Environmental Responsibility".
- At the German CSR Prize, Lufthansa Cargo reached the final with OMEGA in the category "CO_2 Avoidance as Contribution to Climate Protection", together with two other companies.
- At the Payload Awards Asia 2017, Lufthansa Cargo received the Corporate Social Responsibility Award.
- Lufthansa Systems received the German Mobility Prize for the digital obstacle database Lido/SurfaceData, which was introduced in the market at the beginning of 2017.
- SPIRIANT, a subsidiary of the LSG Group, was honored at the TravelPlus Awards as Supplier of the Year for its amenity kits.
- At the Corporate Art Awards 2017 in Rome, the Lufthansa Aviation Center was honored for its art collection. Its prizes are bestowed under the patronage of Italy's Ministry of Culture.

2018

- At the Business Travel Awards 2018, Lufthansa received first prize in the category "Best Long-haul Airline", while the Group company AirPlus was honored for the "Best Corporate Payment Product".
- The International Air Transport Association (IATA) honored the mobile self-services of Austrian Airlines with the Fast Travel Platinum Award.
- SWISS was recognized with the Randstad Award 2018 as Switzerland's most attractive employer.
- Lufthansa received a total of 15 prizes at the most important Deutscher Werbepreis ADC Award (Art Directors Club für Deutschland e. V.), including for the campaign #LifeChangingPlaces.

DEUTSCHE LUFTHANSA AG
Lufthansa Group Communications
Lufthansa Aviation Center
60546 Frankfurt am Main
Germany
E-mail: balance@dlh.de

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