Lufthansa Group

Issue 2014

Balance

Key data on sustainability within the Lufthansa Group

More quietly into the future

About this report

The present sustainability report *Balance* informs stakeholders and the interested public about the goals, activities, and advances of the Lufthansa Group in the areas of business, social responsibility, environment, and corporate citizenship. The data presented in this report pertain to the financial year 2013.

Corporate responsibility as understood in the Lufthansa Group has the following five dimensions:

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

The *Corporate governance and compliance* dimension is considered in the chapter "Sustainable Business Practice". A new chapter, "Product Responsibility", appears for the first time in the present edition of this report.

Scope of consolidation and comparability

Explanatory notes on the scope of consolidation, comparability of data, and the methodology employed to calculate the absolute and specific consumption of resources by the Lufthansa Group are to be found on page 125. Changes in our portfolio in recent years limit the extent to which the personnel figures and environmental data presented in this report are comparable to those reported for previous years. The cooperative arrangement between Lufthansa and the regional airline Contact Air, to cite one example, ended in September 2012. This report also differs from the 2013 Annual Report in the approaches it takes to passenger numbers and the indicators derived from them (see the explanatory notes to the table *At a glance* on page 02).

Publication dates of this report

Balance, the Sustainability Report of the Lufthansa Group, is published once a year in a German and an English edition. The previous edition was published on June 6, 2013.

Additional information on the Internet

In addition to this report, Lufthansa provides a source of information about its activities in the area of sustainability at this Internet address:

www.lufthansagroup.com/responsibility

Disclaimer in respect of forward-looking statements

The data included in this report have been collected and processed with the utmost care. Nevertheless, errors in transmission cannot be ruled out entirely. Information published in this report that relates to the future development of the Lufthansa Group and its subsidiaries consists purely of forecasts and assessments and not of definitive historical facts. It is intended for informational purposes only and is qualified by the use of such cautionary verbs as *believe*, *expect*, *forecast*, *intend*, *project*, *plan*, *estimate*, *count on*, and *endeavor*. These forward-looking statements are based on all discernible information, facts, and expectations available to us at this time. They can, therefore, only claim validity up to the date of their publication. Since forward-looking statements are by nature subject to uncertainties and imponderable risk factors—such as changes in underlying economic conditions—and rest on assumptions that future events may not entirely, if at all, confirm, it is possible that the Group's actual results and the course of its development may differ substantially from those forecast. Lufthansa makes a point of checking and updating the information it publishes. It cannot, however, assume any obligation to adjust statements referring to the future in light of events or developments that may occur at some later date. Accordingly, it neither expressly nor implicitly accepts liability, nor does it give any guarantee for the topicality, accuracy, or completeness of these data or information.

1 Taken from the Annual Report 2013 of the Lufthansa Group. **2** For the reporting year 2013, the following companies have been included in *Balance*: Lufthansa (including Lufthansa CityLine, Air Dolomiti, Eurowings, Augsburg Airways), Germanwings, Lufthansa Cargo, Swiss (including Edelweiss Air) and Austrian Airlines. Excluding the services of third parties as Lufthansa can influence neither performance nor the equipment operated (see also table *Share of third parties* on page 52). **3** Types of flights taken into account: all scheduled and charter flights. **4** See also table *Fuel consumption* on page 52. **5** Value corrected due to calculation error. **6** *Balance*: segments (operational perspective); Annual Report: Distance (customer perspective). One distance can include several segments, e.g. in the event of stops en route. **7** *Balance*: on the basis of all passengers aboard; Annual Report: on the basis of all revenue passengers. **8** 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]

		2013	2012	Change
Revenue	million €	**30,028**	30,135	−0.4%
of which traffic revenue	million €	**24,565**	24,793	−0.9%
Operating result	million €	**697**	839	−16.9%
Profit/loss from operating activities	million €	**849**	1,622	−47.7%
Net profit/loss for the period	million €	**313**	1,228	−74.5%
Total assets	million €	**29,084**	28,559	+1.8%
Cash flow from operating activities	million €	**3,290**	2,842	+15.8%
Capital expenditure	million €	**2,499**	2,359	+5.9%
Equity ratio	percent	**21.0**	16.9	+4.1PP

Personnel data

		2013	2012	Change
Number of employees (on December 31, respectively)		**118,214**	116,957	+1.1%
of these, in Germany		**66,795**	67,620	−1.2%
of these, outside Germany		**51,419**	49,337	+4.2%
Staff costs	million €	**7,350**	6,741	+9.0%
Revenue/employee	thousand €	**256**	257	−0.4%
Staff costs/revenue	percent	**24.5**	22.4	+2.1PP
Average age	years	**41.9**	41.3	+0.6 years
Part-time ratio, absolute	percent	**28.1**	27.9	+0.2PP
Part-time ratio, men	percent	**14.1**	13.7	+0.4PP
Part-time ratio, women	percent	**45.6**	45.3	+0.3PP
Share of women in management (Germany)	percent	**16.7**	15.5	+1.2PP
Share of women in management (worldwide)	percent	**14.5**	13.6	+0.9PP

Environmental data[2, 3]

		2013	2012	Change
Resource consumption				
Fuel consumption[4]	tonnes	**8,764,774**	8,878,926	−1.3%
Fuel consumption, specific, passenger transportation	l/100 pkm	**3.91**	4.06	−3.8%
Fuel consumption, specific, freight transport	g/tkm	**223**	230	−3.0%
Emissions				
Carbon dioxide emissions	tonnes	**27,609,039**	27,968,627	−1.3%
Carbon dioxide emissions, specific, passenger transportation	kg/100 pkm	**9.84**	10.24	−3.8%
Nitrogen oxide emissions	tonnes	**131,091**	132,651[5]	−1.2%
Nitrogen oxide emissions, specific, passenger transportation	g/100 pkm	**46.7**	48.4[5]	−3.5%
Carbon monoxide emissions	tonnes	**18,976**	19,512[5]	−2.8%
Carbon monoxide emissions, specific, passenger transportation	g/100 pkm	**7.4**	7.8	−5.5%
Unburned hydrocarbons	tonnes	**1,990.8**	2,098.0[5]	−5.1%
Unburned hydrocarbons, specific, passenger transportation	g/100 pkm	**0.7**	0.8	−7.3%

Transport performance data 2013

		Balance[2, 3]	±2012	Annual Report[8]	±2012
Flights[6]		**968,428**	**−3.5%**	1,028,260	−3.7%
Passengers carried[7]		**102,693,589**	**+1.7%**	104,587,418	+1.0%
Freight and mail carried	tonnes	**1,962,764**	**−0.5%**	1,965,330	−0.9%
Seat kilometers offered, SKO	million pkm	**259,593**	**+1.2%**	262,682	+1.0%
Freight tonne kilometers offered, FTKO	million tkm	**14,564**	**+0.7%**	14,893	+1.0%
Tonne kilometers offered, TKO	million tkm	**40,212**	**+1.0%**	41,218	+0.7%
Passenger kilometers transported, PKT[7]	million pkm	**213,475**	**+2.8%**	209,649	+2.3%
Freight tonne kilometers transported (incl. third-party performance), FTKT	million tkm	**9,395**	**+1.4%**	10,285	+0.4%
Tonne kilometers transported, TKT	million tkm	**30,817**	**+2.3%**	30,879	+1.5%

A day in the Lufthansa Group

2,800 takeoffs/landings a day

286,000 passengers a day

5,400 tonnes of freight a day

1.45 million meals a day

32,000 calls a day to the Customer Service Network

1,700 aircraft are maintained by us every day

Passenger Airline Group flight destinations*

Europe
8,917 weekly frequencies to 158 destinations in 41 countries

Africa
203 weekly frequencies to 44 destinations in 33 countries

North Atlantic
307 weekly frequencies to 21 destinations in 2 countries

Central and South America
59 weekly frequencies to 9 destinations in 7 countries

Middle East
172 weekly frequencies to 15 destinations in 11 countries

Asia/Pacific
241 weekly frequencies to 27 destinations in 12 countries

* Frequencies per week by Lufthansa, Swiss, Austrian Airlines, and Brussels Airlines.

Dear Readers,

In 2013, as in previous years, the companies of the Lufthansa Group and their employees have "maintained the balance." Even in economically demanding times, we have never lost sight of how important sustainable management of our company is for our long-term success. We have underscored this principle with our membership in the UN Global Compact, the world's largest initiative for responsible business management, which we joined back in 2002.

I am pleased to present to you the 20th edition of our sustainability report, *Balance*. As the largest aviation company in Europe, we are obligated to a large number of interest groups. We embrace this responsibility.

Economic sustainability is fundamental to shaping the important dimensions of our responsibility to society, the climate, and the environment in a manner that is geared towards the future. Our corporate program, SCORE, which we have reported on in *Balance* and other publications since the program began in 2012, has an important role to play in this regard. SCORE is making a key contribution as we consolidate our financial strength and finance our investments in new aircraft and innovative products and services. In financial year 2013 alone we put 31 new aircraft into service. With the Airbus A350-900 and Boeing 777-9X long-haul aircraft we have on order, we are making a quantum leap—not only where the travel experience of our customers is concerned, but also in respect of noise and fuel efficiency. You can learn about our commitment to active noise protection in our special chapter "More quietly into the future," included in this report.

Aircraft today are 80% quieter than 60 years ago. We are not only quieter as we travel the skies, but also more sparing in our use of kerosene. In the last year the airlines of the Lufthansa Group once again achieved a further increase in their fuel efficiency. In 2013, average consumption stood at 3.91 liters of kerosene per passenger per 100 kilometers. That is 3.8% less than in the previous year—another record, this one taking us below the four-liter limit. And for the second time in a row, absolute fuel consumption has decreased. The Group consumed 114,152 fewer tonnes of fuel as compared to 2012, sparing the environment the potential burden of more than 350,000 tonnes of carbon dioxide. This equates approximately to the emissions produced by oil-burning furnaces in 50,000 single-family homes in one year.

The changes that have been taking place in our company, to which SCORE has given new impetus, will be continuing. They are also seen from "outside" as an important element in the future viability of the Lufthansa Group. This makes us even more attractive as an employer, as does our focus on promoting women to management positions. The percentage of women at all levels—in management, on the Executive Board, and on the Supervisory Board—increased further during the reporting year. As compared to the other DAX 30 companies, we have the highest percentage of women on the Executive Board (40%). And with women occupying 35% of the positions on the Supervisory Board, we are in a top position on the *Women on Board* index.

For a more in-depth look at our fascinating company and the world of air travel, I recommend that you read our latest *Balance* report. Enjoy!

Carsten Spohr

Chairman of the Executive Board and CEO
Deutsche Lufthansa AG

"Aircraft today are 80% quieter than 60 years ago."

Carsten Spohr

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The Lufthansa Group
Europe's largest aviation company

The Lufthansa Group is a globally operating aviation company with approximately 500 subsidiaries and associated companies. It operates in five business segments: Passenger Airline Group, Logistics, MRO (maintenance, repair, overhaul), Catering, and IT Services. The Group is one of the global market leaders in all of these business segments.

www.lufthansagroup.com

* As of December 31, 2013.

The five business segments of the Lufthansa Group

→ Passenger Airline Group

The Passenger Airline Group constitutes the largest business segment and is the nucleus of the Lufthansa Group. The airlines of the Lufthansa Group have positioned themselves in their various segments as quality carriers. In 2013 the airline group was able to assert its market leadership in Europe and once again achieve the highest passenger and sales numbers of all European airlines.

Lufthansa
www.LH.com

Germanwings
www.germanwings.com

Swiss
www.swiss.com

Austrian Airlines
www.austrian.com

Brussels Airlines
(equity interest: 45%)
www.brusselsairlines.com

SunExpress
(equity interest: 50%)
www.sunexpress.com

jetBlue Airways
(equity interest: 15.85%)
www.jetblue.com

→ Logistics

Lufthansa Cargo is one of the global market leaders in the international air freight business. The company offers an extensive network of routes to roughly 300 destinations in more than 100 countries. Lufthansa Cargo AG has its headquarters in Frankfurt am Main.
www.lufthansa-cargo.com

Lufthansa Cargo AG

AeroLogic
(equity interest: 50%)

→ Catering

LSG Sky Chefs is the world's largest provider of services in the field of airline catering and inflight management. In 2013 the company produced 532 million inflight meals for more than 300 airlines throughout the world. The parent group, LSG Lufthansa Service Holding AG, has its headquarters in Neu-Isenburg near Frankfurt am Main.
www.lsgskychefs.com

→ MRO

Lufthansa Technik is a world market leader in maintenance, repair, and overhaul (MRO) of commercial aircraft. The company serves more than 770 customers worldwide. Lufthansa Technik AG has its headquarters in Hamburg.
www.lufthansa-technik.com

→ IT Services

Lufthansa Systems is a major global provider of IT services for the airline and aviation industry. More than 300 airlines and some 150 companies worldwide rely on the company's expertise. Lufthansa Systems AG has its headquarters in Kelsterbach near Frankfurt am Main.
www.LHsystems.com

More quietly into the future

The Lufthansa Group is setting standards in its approach to active noise abatement

Over the course of the 20th and 21st centuries, mobility became an ordinary aspect of everyday life. The world became a village. Nowadays it is a fundamental condition for economic or social community. In 2013, for the first time, more than three billion people traveled by air. Mobility can also give rise to conflict, however. It not only provides benefits but also has an impact on the environment, one source of which is noise emissions. This is true of all modes of transportation. It is as true of freight trains as it is for trucks, cars, and airplanes. The airlines of the Lufthansa Group have been setting standards worldwide for responsible mobility. And that includes our commitment to active noise abatement. Understanding the causes of noise in detail and finding ways to continually reduce them are formidable tasks. We are working on them with leading scientists and experts.

quiet

Interview
with Professor Dr. Brigitte Schulte-Fortkamp

Prof. Dr. Brigitte Schulte-Fortkamp

Expert on psychoacoustics and noise effects, Institute of Fluid Mechanics and Engineering Acoustics at the Technische Universität Berlin.

→ Prof. Schulte-Fortkamp, the issue of noise is becoming increasingly prominent on the agenda of public debate. We could sum up the expectation of many people as follows: "The world must get quieter." But to achieve this objective, we need to come to a shared understanding of the causes and effects of noise as well as possible solutions. What is noise?
Noise is sound that is unpleasant, disturbing, and/or harmful to health (DIN 1320). The adverse effects of unpleasant or disturbing sounds may be psychological, physical, social, or economic. The important thing to remember is that noise cannot be measured on a gauge. Noise is one's reaction to sounds, which may be experienced as irritation, anger, stress, or even illness.

→ Why is it that one person may find loud music pleasant while his or her neighbor is disturbed by it? Or to put the question another way, what turns a sound into noise?
How loud you want your music depends on your own mood or what type of music it is. This explains why your neighbor may feel bothered by it. When sounds disrupt conversation, interfere with sleep, or are inappropriate to a situation, then they become noise. The more often this happens, the more annoyed one feels and the greater the danger of falling into a cycle of irritation, stress, and illness. It is not always the volume of a sound that matters; quite often it is its significance. Softer sounds that resemble the pattern of unwelcome sounds can be perceived as noise as well.

→ What makes noise different from other emissions such as the toxic substances or radiation levels we are exposed to in our highly developed, mobile society?
One can always reduce or even prevent noise, whether by "turning it down" by technical means at the source or, for the sake of social compatibility, by social convention. By that I mean not only that rules and regulations for noise prevention should be complied with. Rather, noise is not just physically present or technically generated but socially generated as well. It is, in other words, also a matter of individual, and therefore social, behavior. Furthermore, even though the harmful effects of noise are well known, often they cannot be observed directly, and this is why noise can affect people in a dangerous matter.

→ We all want to be mobile. Even the exotic fruits on display in the supermarket are expected to be fresh. But airports and freeways, like cell phone towers, are considered undesirable. How do you explain this development, which, in Western societies at least, is very widespread?
People are of course only too happy to use modern innovations, including freeways and airports, for their own convenience. The question is, however, would one really like to live near a freeway or airport and put up with the associated stresses? Probably not! We prefer to leave that to "others."

→ What can one do about noise, actively or passively?
There is a lot one can do about noise, both actively and passively. Noise can be actively reduced at the source. One can begin by avoiding noise oneself, which is partly a matter of social conduct. We're all familiar with them, those people on the train, in the waiting lounge at the airport, or on the neighbor's balcony who are forever talking on their phones. By the same token, you don't have to rev up your motorcycle or sports car in a populated area or insist that the entire neighborhood enjoy your latest CD at full volume. It is the technological sources that matter the most. Manufacturing-based solutions can reduce noise generation at the source, as in the case of low-noise road and rail vehicles and aircraft. Given the burden of environmental noise, it is absolutely vital to use passive sound insulation for one's living area. But that means it also has to be made available. ↙

Volume of various noises compared

Sources: SRU, EMPA, MIL, HLUG, UBA, Armbruster

More quietly into the future
The dimensions of our commitment

→ **Lufthansa Boeing 747-8**
The chevron nozzle reduces jet noise; for more details see page 14

01 / Investments in the most advanced aircraft

- We always put a premium on having the most advanced technologies.
- 261 new aircraft will be delivered to us between 2014 and 2025.
- We buy the quietest engines available on the market.
- We are thereby considerably reducing the noise burden on people living in the vicinity of airports.

02 / Retrofitting the existing fleet in order to reduce noise

- We are retrofitting our fleet with new noise-reducing technologies.
- 157 aircraft in the existing fleet are getting vortex generators, which lower the noise level of an aircraft during its landing approach by up to four decibels.
- All Lufthansa B 737 aircraft stationed in Frankfurt have been equipped with noise mufflers.

03 / Active involvement in noise research

- We are conducting research for quieter flying.
- We are identifying noise sources and deriving options for action from what we find.
- We are participating in studies on the effects of noise.
- We have been involved in the *Quiet Traffic* research network for 15 years.

05 / Dialogue with persons living in proximity to airports and other stakeholders

- We take an active part in dialogue forums.
- We provide extensive information about our activities.

04 / Joint development of noise-reducing landing approach and takeoff procedures with our system partners

- Our flight operations are tied into the measures for noise abatement in numerous ways.
- Under certain weather conditions the angle of approach to the northwest runway in Frankfurt is increased.
- At the Frankfurt hub the scheduled rotation of different runways for takeoffs leads to real noise breaks.

01/

Investments in the most advanced aircraft

Ideally, active noise abatement would either prevent noise from occurring in the first place or substantially reduce it by using the most advanced technologies. We therefore invest continually in state-of-the-art aircraft.

By 2025 the Lufthansa Group will take delivery of 261 aircraft of the latest generation at a list value of EUR 32 billion. It is clear from the example of the new Boeing 747-8—the legendary jumbo jet—that modern commercial aircraft are becoming quieter all the time. As compared to its predecessor model the Boeing 747-400, the *noise footprint* of the Boeing 747-8 is 30% smaller [→ 02].

On May 1, 2014 the Lufthansa Group received the 13th of the 19 Boeing 747-8 aircraft it has on order. This aircraft is powered by thoroughly redesigned, considerably quieter, and highly fuel-efficient engines. The most striking of the numerous technological innovations is the *chevron*, a sawtooth pattern on the trailing edge of the engine's exhaust nozzle. This results in a better mixing of the turbulent shear layer, the stratum of air between the hot, fast exhaust jet from the engine's turbine and the cold bypass stream that flows around or envelops the engine's core.

The chevron nozzle, as shown in the photograph [→ 03], considerably reduces pressure fluctuations and, consequently, the jet noise emitted by the engines. The sawtooth concept is applied also to the outer trailing edge. There, too, it reduces noise emissions. In 2001, Lufthansa and the *German Aerospace Center* together used overfly measurements to demonstrate that chevrons on the exhaust nozzle reduce the exhaust noise of an Airbus A319 engine by about 1 dB(A).

In addition to the A320neo short- and medium-haul aircraft ordered in 2011 and 2013, 59 state-of-the-art aircraft—34 Boeing 777-9X and 25 Airbus A350-900—will join the Lufthansa Group's long-haul fleet in the future [→ 01]. Delivery of the A350-900 will begin as early as 2016. By 2025 they will have replaced the older Boeing 747-400 and Airbus A340-300 aircraft. The new models will have a considerably smaller noise footprint than today's aircraft [→ 02].

www.lufthansagroup.com/fleet_development

New long-haul aircraft (A350-900 and Boeing 777-9X) [→ 01]

Airbus A350-900

Boeing 777-9X

More quietly into the future: The new long-haul aircraft will be powered by exceptionally quiet and fuel-efficient engines: the Airbus A350-900 by Rolls Royce Trent XWB 84 engines and the Boeing 777-9X by the GE-9X engines manufactured by General Electric. The noise footprint of both models will be considerably smaller than that of today's aircraft.

Noise contours compared (B 747-400 vs. B 747-8 and B 777-9X) [→ 02]

For each of the contours shown, the intensity of sound at takeoff is 85 decibels.

	Boeing 747-400	Boeing 747-8	Boeing 777-9X
MTOW	395 t	442 t	351 t
First flight	1989	2012	~2020

The noise footprint of a Boeing 747-8 on takeoff is, despite its 10% higher maximum takeoff weight, about 30% smaller than that of the Boeing 747-400. The Boeing 777-9X ordered by Lufthansa will have a noise footprint that is about 40% smaller than that of the Boeing 747-400, according to the manufacturer's specifications. The chart shows the 85 dB maximum level contours for a takeoff according to standard Lufthansa takeoff procedures (modATA) and with the takeoff weights as shown.

[→ 03]

261

Between 2014 and 2025 the Lufthansa Group will be taking delivery of a total of 261 low-noise and highly fuel-efficient aircraft.

03

The Lufthansa Boeing 747-8 is powered by thoroughly redesigned, considerably quieter, and highly fuel-efficient engines. The most striking of the numerous technological innovations is the *chevron*, a sawtooth pattern on the trailing edge of the engine's exhaust nozzle.

02 /

Retrofitting the existing fleet in order to reduce noise

The Lufthansa Group is also retrofitting older aircraft in its fleet with noise-reducing technologies. In this connection the Group is working closely with the *German Aerospace Center* (DLR) and the various aircraft manufacturers. Some of the research findings resulting from this cooperation have already been incorporated into the manufacturing process.

Lufthansa is retrofitting more than 200 aircraft with vortex generators so that they will fly more quietly in the future
In February 2014 Lufthansa became the first airline in the world to take delivery of an Airbus A320 equipped with vortex generators. A total of 157 aircraft in the existing fleet will be equipped with the new noise-reducing component, so that, when the expected new deliveries are added in, more than 200 A320 aircraft in total will be flying more quietly. These will be used on short- and medium-haul routes in Germany and Europe.

The vortex generator technology [→ 06] is based on the results of the research conducted by the Lufthansa Group and the DLR. Overfly measurements revealed that the vortex generators are able to eliminate two unpleasant tones. Initial measurements of the new aircraft with vortex generators have shown that the aircraft's total noise level on approach falls by up to four decibels at distances between 17 and 10 kilometers from the runway. Thus the Lufthansa Group has realized a key objective of the *Alliance for More Noise Protection*, a joint initiative of the Lufthansa Group, Fraport, the airline association BARIG, DFS, the *Airport and Region Forum* (FFR), and the government of the State of Hesse. This measure brings relief particularly to neighbors of the major hubs serving Frankfurt and Munich.

Silencers for the Boeing 737
The Lufthansa Group retrofitted all of its Boeing 737 aircraft stationed in Frankfurt with new silencers in 2011 to bridge the period until new, quieter aircraft are delivered and to bring relief earlier to those living in the vicinity of the airport. The last Boeing 737 is to be taken out of service in 2015.

03 /

Active involvement in noise research

The task of making air traffic ever quieter is a complex one. It requires the cooperative efforts of multiple actors. For this reason, the Lufthansa Group is working closely with partners in industry, government, academia, and major research institutions. We have been actively involved with the *Quiet Traffic* research network since 1999. This initiative, which is led by the DLR, relies on the interdisciplinary cooperation of industry, research institutions, and transport operators. It investigates specific problems related to noise from road, rail, and air traffic.

Project MODAL: Identifying noise sources and improving noise abatement measures
The Lufthansa Group is spearheading the project MODAL (Models and Data for the Development of Active Noise-Abatement Measures in Aviation) as part of the Aeronautics Research Program of the German Ministry of Economics. The project is aimed at achieving a better understanding of the noise emissions produced by different types of aircraft. Another aim is to improve the analysis of active noise abatement measures through more precise calculations.

Project SAMURAI: The cornerstone for quieter jet engines
From September 23 to 28, 2013, DLR scientists used laser technology and microphones for the first time to analyze noise generation inside jet engines and on the main fan. In this elaborate and sophisticated measuring campaign, the noise researchers used the DLR's A320-ATRA research aircraft for a series of static engine tests. The test runs were carried out in Lufthansa Technik's soundproof hangar at Hamburg Airport. Lufthansa Technik and Hamburg Airport supported the multidisciplinary research project. Never before had the mounted engines of a commercial aircraft been studied with the simultaneous use of a large number of microphones and laser-optic metrology techniques while in operation. The objective of the project is to locate the zones within the engine flow where large, turbulent fluctuations in velocity and density produce noise. Once the project is completed, the researchers intend to deliver improved simulations of jet engines and their noise-producing flow structures.

04
Research for quieter flying: Lufthansa Technik's soundproof hangar at Hamburg Airport.

NORAH: A new noise study
The NORAH (Noise-Related Annoyance, Cognition, and Health) study concerns the effects of noise produced by road, rail, and air traffic on the health and quality of life of the resident population of affected areas. Publication of the NORAH report is expected sometime in the middle of 2015. The Lufthansa Group supports the study because of its broad scope and sound scientific basis.

www.norah-studie.de

“Before every takeoff we consider what the optimum procedure is to keep noise to a minimum.”

Capt. Oliver Cantele,
Ops Efficiency Program Manager,
Austrian Airlines

“Low noise and consumption values are the two crucial environmental parameters when selecting new aircraft.”

Nico Buchholz,
Executive Vice President,
Group Fleet Management,
Deutsche Lufthansa AG

“There is an audible reduction in the noise burden on residents of areas near our major hubs.”

Markus Pauly,
Director, Commercials
& Development
Frankfurt Hub,
Deutsche Lufthansa AG

“We have been actively involved for years in noise research so that we can fly more quietly.”

Dr. Gerd Saueressig,
Manager, Group Environmental
Issues,
Deutsche Lufthansa AG

Flight noise portal

Extensive information on the airline industry's commitment to noise abatement can be found also on the new website of the German Aviation Association (BDL).

www.fluglärm-portal.de

Major progress for freight transport

05
Boeing 777-F: The three numbers and one letter stand for the world's quietest and most environmentally friendly freighter. In June 2014 Lufthansa Cargo put into service the fourth of the five aircraft of this type it had ordered. It meets the standards of what is currently the most rigorous noise protection class in civil aviation.

Quieter thanks to sophisticated technology

06
Lufthansa is retrofitting more than 200 aircraft with vortex generators so that they will fly even more quietly in the future. They are based on the results of research conducted by the Lufthansa Group and the DLR. Overfly measurements revealed that the vortex generators are able to eliminate two unpleasant tones and thereby lower the aircraft's total noise level on approach by up to four decibels.

Fewer people affected by noise from aviation

[→ 07]

Fewer and fewer people consider themselves extremely or moderately affected by noise from aviation.

Source: BMU, Umweltbewusstsein in Deutschland (Environmental awareness in Germany) 2000–2012

07
Those who question the benefits of mobility for persons or for the transport of goods are entering into a discussion with implications for society as a whole. Some of these implications are health-related, as mass transportation produces noise. For those who are affected the most, aircraft noise is a source of stress. On the whole, however, the adverse effect air traffic has on people is small in comparison to other modes of transportation. Moreover, the proportion of people who consider their exposure to aircraft noise to be strong to moderate has declined by more than half since 2000.

Bombardier CSeries at Swiss: Audible reduction in the noise burden on residents of areas near airports

08
Swiss will be taking delivery of 30 CSeries aircraft from Bombardier, which will replace the Avro RJ100 regional aircraft currently in operation. The advent of this new generation of aircraft will bring a clearly audible improvement to the lives of those living near airports. The new aircraft, which are destined for service on European routes beginning sometime in 2015, are on average 10 to 15 decibels quieter than an Avro RJ100. According to the manufacturer information, the 60 dB maximum level contour of the CSeries has been reduced by 75% in comparison with its predecessor.

Where noises are generated on an aircraft

[→ 09]

The sound of an aircraft taking off is dominated by the noises produced by the engines. These emit noise both forwards and backwards. Airframe noise is caused by landing gear and control surfaces such as slats and flaps. These are important starting points for any project to develop new, quieter aircraft.

Yet more of the substantially quieter Airbus A320neo aircraft for Lufthansa

10
The Lufthansa Group ordered 30 aircraft in the A320neo family on March 16, 2011 and another 70 such aircraft on March 13, 2013. 60 of these aircraft are equipped with PW1100G engines built by Pratt & Whitney, 40 others with LEAP-1A engines built by CFM International. These two engines are comparable in their flight performance and environmental compatibility values. For example, they reduce by half, according to their manufacturers' specifications, the usual noise footprint produced by an aircraft when taking off or landing. This is a substantial reduction in the noise burden on residents of areas close to airports.

Financial incentive systems for airlines. Did you know that … →

Since 2001, aircraft that take off or land in Frankfurt are classified according to the aircraft type's noise level as actually measured in Frankfurt? Louder types of aircraft bear a heavier fee burden. The Frankfurt Airport is an international pioneer with its noise-based fee structure.

Source: Fraport, Bericht über Schallschutz am Flughafen Frankfurt (Report on noise abatement at Frankfurt Airport), October 2012–March 2013

→

04 /

Joint development of noise-reducing landing approach and takeoff procedures with our system partners

In its efforts to fly more quietly, the Lufthansa Group has been having successful results for a long time with new flight procedures such as continuous descent operations, steeper approaches, and changes in flight routes. Such noise-reducing takeoff and landing procedures are another focus of our active noise abatement measures, such as those developed and implemented in the *Airport and Region Forum* (FFR) in Frankfurt. Our flight operations are tied into these measures in numerous ways.

Noise reduction at the Frankfurt hub: Relief for those affected the most

Particularly in Frankfurt, our biggest German hub, representatives of the flight operators regularly take part in a roundtable of experts and work intensively to introduce new noise-reducing takeoff and landing approach procedures. One measure already implemented in Frankfurt is the scheduled alternation of different takeoff runways referred to as *dedicated runway operations*. This results in predictable, genuine breaks from noise.

In addition, the angle of approach to the new northwest runway in Frankfurt has been increased for certain weather conditions from 3.0 to 3.2 degrees, which results in higher overfly altitudes. This is one of the few means available to afford people living in proximity to the airport and directly below the final approach path at least some mild relief from the noise [→ 11].

Flying higher for longer

[→ 11]

Since the middle of October 2012, the angle of approach to the northwest runway has been increased by almost 7%. ↙

A steep angle of approach contributes to noise abatement. The illustration above uses the approach to Frankfurt Airport's northwest runway as an example.

80% quieter as a result of technical innovations

Aircraft today are 80% quieter than they were 60 years ago. This progress has been based primarily on developments in engine technology; see [→ 12]. Aircraft are improving aerodynamically all the time. They produce smaller vortices and therefore less noise. With each new generation of aircraft there is a reduction in noise emissions as compared to the previous models. In addition, industry and science are working hand-in-hand to reduce noise emissions ever further, so that an aircraft's noise contours [→ 02] are being increasingly limited to the airport premises. This also reduces the burden of aircraft noise on the local population.

Furthermore, guidelines such as those for noise certification by the United Nations' International Civil Aviation Organization (ICAO) are having an impact. These specify the level of permissible noise emissions from new aircraft models. Many older and louder aircraft are no longer allowed at European airports at all. Exceptions are made for relief supply flights and vintage airplanes.

Reducing noise at the source

[→ 12]

Less noise as the result of modern engine technology. Investments in the billions that have paid off: 80% quieter in 60 years.

Source: Airbus

[→ 13]

05 /

Dialogue with persons living in proximity to airports and other stakeholders

The Lufthansa Group has been engaged for years in a neighborly dialogue with politicians, experts, and residents of areas near airports. Maintaining this exchange is a key concern for us. One example that may serve as a visible expression of our efforts in this regard is the Information Center of the Environment and Community House (UNH) in Kelsterbach near Frankfurt am Main, which opened in April 2013 [→ 13]. Together with other system partners, the Lufthansa Group provides the project with material support and content. The UNH contains interactive exhibition spaces dedicated to topics such as noise and sound, aviation and the environment, and the importance of the airport to the economy and the labor market. Its most important goal is to bring about lasting and continual improvement in communication and cooperation among the airport, its users, and its neighbors.

13

View of the interior of the Information Center of the Environment and Community House in Kelsterbach near Frankfurt, which opened in April 2013. Together with other system partners, the Lufthansa Group provides material support and content for the project.

Sustainable Business Practice

Sustainable business practice is the basis of our success. Together with our stakeholders we shape the future.

697

operating result for 2013 in million euros

261

new aircraft that we will receive between 2014 and 2025

3,200

SCORE projects implemented

20

years of continuous reporting on our sustainability performance

Embodying corporate responsibility

Sustainable business practice is an important influencing factor on our ability to ensure the future viability of the Lufthansa Group. Responsible entrepreneurial practice is firmly embedded in our corporate strategy. Its guiding principle is *shaping the future together*.

The Lufthansa Group is committed to pursuing sustainable and responsible management practices in all of its business segments. In particular, our extensive investments in a new, even quieter and more fuel-efficient fleet constitute an important step towards making present and future means of human mobility environmentally compatible. The *cash value added* (CVA) approach to measuring company performance under a value-based management regime integrates value- and future-oriented thinking into all decision-making processes.

The Lufthansa Group's business operations and its sustainability agenda are influenced by many different social developments. Current global megatrends and future challenges include, in addition to population growth and increasing human mobility, demographic changes, the trend towards a service economy, and growing access to the Internet. At the same time, there is a mounting need for security, and environmental protection is taking on ever greater importance in light of impending climate change and dwindling resources.

Confronting these challenges is what we mean by acting "sustainably." Our aim is to create, with innovative services and products, long-term positive value for our shareholders, customers, employees, and the good of society. Through its contribution to our earnings, our corporate program SCORE, which we instituted in 2012, creates an important prerequisite and the necessary scope of action for sustainable business practice.

The Lufthansa Group is steadfast in its pursuit of sustainable business practice.

This creates positive prospects for our companies, our employees, our shareholders, and our customers.

The Lufthansa Group is pursuing four strategic goals:

- Increase the company's value.
- Expand the leading market position of our airlines and service companies by actively shaping the aviation industry.
- Continuously increase customer satisfaction.
- Conduct economically, ecologically, and socially balanced and sustainable business.

The focus of our attention is our customers and their mobility needs. Our efforts towards continual improvement are based on long-term value creation, prudent management of opportunities and risks, rigorous management of our supply chains, and constructive dialogue with our stakeholders.

Assuming corporate responsibility in the Lufthansa Group encompasses matters of economic, ecological, and social sustainability together with corporate governance and compliance as well as corporate citizenship. Our five-dimensional model makes sustainable corporate management in all its facets intelligible for our many and varied stakeholders [→ 01].

The individual chapters and subchapters of the present report provide detailed information about the various areas on which our commitments are focused. In addition, we include for the first time a separate chapter devoted entirely to a report on product responsibility.

Jointly defining the key issues

As 2014 began, the Lufthansa Group once again conducted an expert survey among representatives of their stakeholders. Its purpose was to compare areas of practical importance for their sustainability policies, as seen from the standpoint of our stakeholders and of the company, and to work the results accordingly into the topics as presented in the present Sustainability Report and into our strategic corporate deliberations.

Among the participants in the survey were representatives of nongovernmental organizations, system partners, politicians, investors, customers, employees, suppliers, and sustainability experts. Altogether, 21 interviews were conducted by telephone and in person.

We asked our stakeholders to prioritize the items on our sustainability agenda (by field of action) and to evaluate our sustainability performance. The results of the survey provided us with valuable stimuli for the future development of our sustainability agenda.

Actively shaping the future with SCORE

The Lufthansa Group achieved an operating result of EUR 697 million in 2013. Given this economic development, the Executive Board no longer believes that the earnings target for 2015 of EUR 2.65 billion, which was set as part of the SCORE program, can be achieved, despite the substantial contributions to earnings made by SCORE. The Executive Board now expects an operating result of around EUR 2 billion for 2015. The company nonetheless intends to substantially increase its operating profit compared with the current year. The current development underlines the importance of SCORE for the Lufthansa Group.

The goal of the SCORE program is to exploit synergies within the Group, lower costs, increase revenues, and optimize processes.

The dimensions of our corporate responsibility [→ 01]

SCORE now comprises more than 4,200 individual projects, some 3,200 of which we have already implemented. The Lufthansa Group is thereby creating the conditions that will allow us to actively shape the future and manage the company on a sustainable basis.

The SCORE program is organized on three levels. It comprises Group-wide projects, joint projects of the airlines in the Lufthansa Group, and projects within individual companies. Each project passes through five phases: conception, evaluation, planning in detail, implementation, and performance assessment. The SCORE tracker keeps those involved informed of the status of the various projects. This Group-wide program also has long-term corporate cultural significance. Our goals are entrepreneurship and flexibility along with optimal cooperation within the Lufthansa Group. These require motivation and a strong sense of commitment on the part of our employees.

Demonstrating responsibility with an extensive fleet modernization

In 2013 the Lufthansa Group more than doubly fulfilled the airline industry's annual target of increasing fuel efficiency in flight operations by 1.5%. For the first time in the Group's history, the Group fleet's specific fuel consumption (measured in liters of kerosene per passenger per 100 kilometers) fell to less than four liters. For the second year in a row, we were able also to reduce kerosene consumption in absolute terms. We are flying more economically while at the same time reducing our impact on the environment. Detailed information on the subject of fuel efficiency may be found in the chapter "Climate and Environmental Responsibility" beginning on page 44.

The Lufthansa Group is currently implementing the largest fleet modernization program in the company's history. There are now 261 aircraft on order for delivery by the end of 2025, representing an investment volume of EUR 32 billion at list prices (as of December 31, 2013). The Lufthansa Group invested EUR 2.5 billion during the reporting period. Of that, EUR 2.1 billion was invested in modernizing and maintaining the fleet. The Lufthansa Group also maintains a focus on active noise protection efforts. We are continually working to further reduce the noise burden on residents of the areas surrounding our major airport hubs. This year's focus topic, "More quietly into the future", offers an overview of these efforts beginning on page 08.

Awards for commitment to sustainability

Outside experts and agencies regularly evaluate the Lufthansa Group's commitment to responsible action. In 2013 the Group was once again included in the FTSE4Good and Ethibel Excellence Investment Register sustainability indices and in two indices compiled by the well-known ECPI rating agency, which specializes in sustainability.

02
The E-PORT AN electro-mobility initiative, in which the Lufthansa Group is a participant, received the rating *Leuchtturm Elektromobilität* ("Electro-Mobility Beacon") from the German federal government.

The FTSE4Good index was introduced in 2001 by FTSE, a wholly owned subsidiary of the London Stock Exchange. It lists only those companies that meet the internationally accepted standards of corporate responsibility in the following dimensions: environmental management, climate change, human and labor rights along the supply chain, corporate governance, and anti-corruption efforts.

Through its participation in the Carbon Disclosure Project (CDP), the Lufthansa Group scored yet another improvement in its assessment as compared to the previous year. The goal of this independent investor initiative, which is global in its scope, is to induce companies to disclose not only their CO_2 emissions, but also their strategies to further reduce them.

During the reporting year the Lufthansa Group once again received numerous awards and prizes. In the category of corporate responsibility, for example, we were awarded the Airline Business Technology Award by *Airline Business* magazine. The jury commended in particular the technical capabilities and innovativeness of Lufthansa Technik, which is making an important contribution towards economic and ecological sustainability.

In addition, the *E-PORT AN* electro-mobility initiative at Frankfurt Airport, a joint initiative of the Lufthansa Group, Fraport AG, the State of Hesse, and the Rhine-Main Model Electro-Mobility Region, won the prestigious GreenTec Award in May 2014 in the aviation category. This prize is regarded as the most important of all European environmental and business management-related awards. The joint initiative had already received the rating *Leuchtturm Elektromobilität* ("Electro-Mobility Beacon") from the German federal government in 2013. A list of selected prizes and awards can be found on page 129.

Organizationally embedded corporate responsibility

The Corporate Responsibility Council (CRC) is responsible for coordinating and further developing all activities and initiatives within the Lufthansa Group related to issues of sustainability. This interdisciplinary and interdepartmental body at the upper management level is managed by the head of Group Strategy. The CRC's members also include the heads of Political Issues, Environmental Issues, Human Resources, Legal Affairs, Communi-

cations, Investor Relations, Controlling, and Corporate Sourcing departments. The CRC reports directly to the Executive Board of the Lufthansa Group. In addition, a working group established within the Group and comprising representatives from all sustainability-related departments meets regularly to discuss current topics and questions relating to corporate responsibility. This working group reports to the CRC.

Linking corporate responsibility to financial incentives

Executive Board members and managers receive their variable remuneration in part on the basis of *cash value added* and such sustainability parameters as fuel efficiency and CO_2 emissions, but also on the basis of customer and employee satisfaction. The Lufthansa Group ensures its economic success by regularly studying the critical opportunities and risks facing the company and factoring the results into its corporate management decisions. This prepares us for both positive and negative influences and enables us to respond to them with flexibility. Detailed information on how we manage risks and opportunities may be found in the 2013 Annual Report, beginning on page 97 in the "Opportunities Report" chapter, and beginning on page 102 in the "Risk Report" chapter.

For us, compliance with the law goes without saying

The Lufthansa Group defines corporate governance first and foremost as corporate management and control that is informed by an awareness of the company's responsibilities and aimed towards sustainable value creation. It meets high international standards and is crucial for maintaining transparency towards shareholders and trust in the company's management. The German Stock Corporation Act and the German Corporate Governance Code are key elements on which it is based. Further information on the subject of corporate governance and compliance begins on page 28.

Particularly in the social sphere, our scope of action is defined not only by current laws but also by the Lufthansa Group's own commitments. These include our membership in the UN Global Compact, the largest initiative in the world for responsible business management. In 2002 Lufthansa became the first aviation company to join the initiative, which had been launched two years earlier by then UN Secretary General Kofi Annan. The participating companies have agreed to align their business activities and strategies with 10 universally accepted principles concerning human rights, labor standards, environmental protection, and anti-corruption measures. The Lufthansa Group supports the principles of the UN Global Compact with numerous programs and activities.

The Lufthansa Group is committed to fostering a culture of diversity within the company and—with its membership in the UN Global Compact, the International Chamber of Commerce, Transparency International, the German Business Ethics Network, and institutions devoted to particular aspects of human rights—expressly embraces compliance with the various applicable standards and, ultimately, the cause of human rights. In 1951 Lufthansa's home country, Germany, signed a commitment to comply with the ILO standards, whose rules—which for our Group are a matter of course—are therefore binding on Lufthansa as well.

In countries where acceptance of human rights cannot be taken for granted, we make every effort to encourage positive development by setting an example through our conduct towards our own employees. Although realization of the human rights formulated in the UN Charter is a matter of national, and hence country-specific, standards, Lufthansa is nevertheless making a contribution towards securing the following rights through its exemplary treatment of its employees:

- The right to freedom of assembly and association
- The right to social security
- The right to work, to free choice of employment, and to just conditions of work
- The right to equal pay for equal work, the right to form trade unions
- The right to rest and leisure and regular paid vacations
- The right to a standard of living adequate for health
- The right to an education and to freely choose the form of one's education

The 10 principles of the UN Global Compact

Human rights

- Businesses should support and respect the protection of international human rights within their sphere of influence and
- make sure their own corporations are not indirectly linked to human rights abuses.

Labor

- Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- eliminate all forms of forced and compulsory labor;
- effectively abolish child labor; and
- eliminate any discrimination in respect of employment and occupation.

Environment

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

Anti-corruption

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

www.unglobalcompact.org

Corporate governance and compliance

For the Lufthansa Group, corporate governance is expressed in practice as corporate management and control that is informed by an awareness of the company's responsibilities and aimed towards sustainable value creation. It meets high international standards and is of central importance in our efforts to maintain transparency towards the shareholders and continually increase trust in the company's management.

The German Stock Corporation Act and the German Corporate Governance Code are key elements on which it is based. Our declaration of conformity pursuant to the German Corporate Governance Code may be found on page 17 of the 2013 Annual Report.

Lufthansa is also registered in the voluntary transparency register of the European Commission and European Parliament. The goal of this public register, which was set up in June 2011, is to increase the transparency of decision-making processes within the EU and to ensure that interactions between EU institutions and organizations, associations and companies are in conformity with current law and are conducted on the basis of ethical principles.

→

The Lufthansa Compliance Program ensures compliance with applicable law

Compliance refers to all measures taken to ensure that companies, their executive bodies, and their employees observe the law in their conduct. The Lufthansa Compliance Program, which was established in 2004, is intended to keep employees from violating the law and to train them in the application and interpretation of legal norms. As an aviation company with global operations, the Lufthansa Group advocates fair competition, integrity, and responsible action. The compliance guidelines are in unison with the Lufthansa Group's existing guidelines, programs, and work rules.

Organization of the Compliance Program
The Compliance Office, which was established on October 1, 2007 within the central legal department, is responsible for implementing, developing, and communicating the Lufthansa Compliance Program. In addition, the various Group companies have appointed Compliance Commissioners and Compliance Managers. The Compliance Office coordinates investigations into circumstances surrounding compliance issues and serves as a contact point for antitrust and investigative authorities, to which Lufthansa gives its full cooperation. The compliance guidelines constitute a core component of the Lufthansa Compliance Program. These internal regulations mark out for employees the limits of proper practice to ensure that conduct conforms to a uniform and legally compliant standard. The company is not willing to tolerate any violations of law by its employees. Culpability for violations of law has legal consequences under labor law and may also entail personal liability. The Lufthansa Compliance Program currently comprises modules relating to competition, capital market, integrity, embargo, and corporate compliance matters.

Competition Compliance
The Competition Compliance module familiarizes employees with the relevant provisions of antitrust legislation to minimize or exclude the risks Lufthansa faces under antitrust law. All employees who are exposed to matters in which antitrust law is of relevance are trained in the fundamental provisions of European and national antitrust legislation.

Capital Market Compliance
The Capital Market Compliance module gives employees an overview of the applicable provisions of capital market law, such as those concerning insider trading or ad hoc publicity. In this way, and with an accompanying training program, all employees and company bodies concerned receive an in-depth understanding of the provisions of the German Securities Trading Act (*Wertpapierhandelsgesetz*).

Integrity Compliance
With the Integrity Compliance module, Lufthansa documents its fundamental approach to legal compliance in its business dealings. The duty to conduct oneself in a

manner that is free of corruption and ethically correct flows naturally from current law, internal compliance guidelines, and the commitments Lufthansa has made through its membership in the relevant national and international organizations. Examples include the Lufthansa Group's commitment to the principles of the UN Global Compact and its membership in Transparency International. The Integrity Compliance guidelines and checklist provide guidance on how to handle invitations, gifts, and other considerations.

Corporate Compliance
The Corporate Compliance module bundles those internal regulations that are of key importance for the Lufthansa Group from a legal standpoint and makes them transparent for employees.

Embargo Compliance
The Embargo Compliance module serves to ensure compliance by the Lufthansa Group, as a globally operating group of companies, with the provisions of foreign trade sanctions imposed against specific countries or persons. The Embargo Compliance guidelines mark out for the employees concerned the limits of proper practice.

Regular training in matters of compliance
Automated IT processes ensure that all employees and executive bodies at Lufthansa participate once a year in the web-based training courses (e-learning courses) that are relevant to what they do. Employees of the subsidiaries also have access to these e-learning courses and are to some extent already included in the automated mailing list. The Compliance Office regularly offers face-to-face training courses as well. Compliance training is an integral part of leadership seminars, management courses, and other internal continuing education events and conferences.

Monitoring and reporting
Self-audits and external audits ensure that the Compliance Program is implemented effectively in light of the current requirements under the Accounting Law Modernization Act (*Bilanzmodernisierungsgesetz*). In addition, the Supervisory Board's Audit Committee is informed twice a year of current compliance-related developments within the Group and the current state of the program's implementation. ↙

Ombudsman system →

Another fundamental element in the Lufthansa Compliance Program is the ombudsman system, a program of proven effectiveness that has been implemented worldwide. Introduced on December 1, 2007, it serves as an additional preventive measure against white-collar crime. An ombudsman outside the company can receive information from employees or third parties by telephone, in writing, or in person. The office of ombudsman is performed by Dr. Rainer Buchert, a Frankfurt lawyer who is subject in full to the legal duty of professional secrecy and who also has the right to refuse to give evidence to government investigative authorities. The ombudsman refers all information given to him to Lufthansa without disclosing the names or identities of his informants. Disclosure of an informant's identity to Lufthansa or third parties without the informant's consent is prohibited.

The Lufthansa Compliance Program

Stakeholder dialogue

The Lufthansa Group actively seeks constructive and critical exchange with all of its stakeholders. We maintain this dialogue at the various levels and work what we learn from it into what we do so that together we can shape a sustainable future.

Openness, clarity, and continuity are essential for preserving and further developing trust in our company among our stakeholders. Understanding the expectations, interests, and information needs of our stakeholders is important for us in many respects. Apart from the continual exchange of knowledge, it helps us promote mutual trust and understanding for both sides.

An all-embracing dialogue with our stakeholders, moreover, clears the way for new forms of cooperation and collaboration with them. We are constantly getting our stakeholders involved in processes of development and innovation. This includes, for example, the development of new seats, or other innovations associated with flight as a product, along with regular customer surveys. We look constructively for joint solutions to social problems and seek to improve social conditions. An example of this is our involvement in the *Airport and Region* forum and in the *Environment and Community House* at Frankfurt Airport.

A fundamental challenge in this dialogue with stakeholders in different regions of the world is their variety as reflected in differences in their expectations. The various subsidiaries and our worldwide business operations are other factors. All this calls for great skill in steering the dialogue towards reconciliation of varying interests.

Our sustainability report, *Balance*, also contributes towards transparency

The sustainability report *Balance* keeps our stakeholders informed of various points of emphasis and the progress being made in our sustainability strategy. We began in 1994 initially with an environmental report but now cover all relevant aspects of corporate responsibility. The sustainability report is the comprehensive basis for our dialogue with our stakeholders. In addition, we use various media to communicate sustainability-related informational content intended for specific target groups, content that we are continually developing.

Since January 2013, for example, the Lufthansa Group's corporate communications service has been offering, with its information service *Corporate Responsibility – Stichwort der Woche* ("Key phrase of the week"), a weekly source of information, through social media and other channels, relating to the topic of corporate responsibility.

Balance, as the title of our sustainability report, illustrates our sense of responsibility for a strategy of balance between the multifarious interests of the Group and its stakeholders. We regard the inclusion of our stakeholders in our corporate decision-making processes as an ongoing process.

Recognizing what the key sustainability issues are

In February 2014 we made adjustments, based on a survey conducted among our stakeholders, to the key areas of action in our sustainability strategy and to the focus of our communication on sustainability issues. Among the participants in the survey were representatives of nongovernmental organizations, system partners, politicians, investors, customers, employees, suppliers, and sustainability experts.

→

Our dialogue with individual stakeholders

Shaping the future together expresses the guiding principle behind our approach to corporate management and its pursuit of sustainability. It is entirely in keeping with this spirit that we attach great value to maintaining, in a spirit of trust, an ongoing dialogue with our stakeholders.

Passengers/customers
Customers are always at the center of the Lufthansa Group's attention. Their satisfaction is an important concern for us. For more than a decade Lufthansa has therefore systematically gauged the level of our passengers' satisfaction using, for example, the CPI (Customer Profile Index). This index reflects customer evaluations all along the service chain. In 2013 the CPI once again rose in comparison to the previous year—from 7,733 to 7,804 points. This represents a roughly 1% increase in our passengers' level of satisfaction. In addition, the Lufthansa Group is continually seeking dialogue with its customers, and it has designed a new feedback process with its *customer advisory boards* (see "Customer satisfaction," page 72).

Our customers and other stakeholders may also receive and exchange extensive information about the Lufthansa Group through the *Discover Lufthansa* visitor service at our Frankfurt and Hamburg locations. This service is intended specifically for top German and international customers from various industries as well as for students, university or college graduates, persons living in the vicinity of airports, and representatives of various associations and research institutes. In 2013, 4,645 interested persons availed themselves of the opportunities offered in Frankfurt for dialogue on various topics, including topics relating to sustainability, by taking part in 485 expert-guided tours and other events. Roughly 40% of the events were for corporate or sales customers. Research institutes and institutes such as the Max Planck Institute, the Fraunhofer Institute, Deutsche Flugsicherung (DFS), and the Schmalenbach Gesellschaft accounted for 16%, the second highest share, of visitors.

The diverse stakeholders of the Lufthansa Group

- → Suppliers
- → Contractual partners

- → Customers
- → Consumers
- → LOHAS (Lifestyle of Health and Sustainability)

- → Capital market
- → Investors
- → Shareholders
- → Analysts
- → Rating agencies

- → Employees
- → Employee representatives

Lufthansa Group

- → Governments
- → Legislators
- → Politicians
- → Authorities

- → Science
- → Research
- → Education

- → Nongovernmental organizations (NGOs)
- → Organizations
- → Consortia

- → Neighbors
- → Local communities
- → Society
- → Publicity
- → Social networks

03
For the first time the visitor service organized bicycle tours for employees in conjunction with a tour of Lufthansa's flagship A380.

In the reporting year there were also numerous events geared towards students and held as part of information days for schoolchildren. In August and September 2013 the visitor service organized for the first time bicycle tours for employees in conjunction with a tour of Lufthansa's A380 wide-body airliner, thus combining physical exercise and information in an innovative fashion.

The range of activities that the Group is involved in is wide. The Lufthansa Group's participation in the *Kunst privat!* ("Private art!") project, for example, offered those interested in art or architecture an opportunity to become familiar with the Lufthansa Aviation Center at Frankfurt Airport on June 8 and 9, 2013. The *Tag der Luftfahrt* ("Air Travel Day") took place on the same weekend. Its highlight: the A380. By the end of the first day, more than 1,000 visitors had already taken advantage of the opportunity afforded by a raffle to experience Lufthansa's flagship up close.

Visitor services are operated also by the Lufthansa Group airlines Lufthansa Cargo (at Frankfurt Airport), Swiss (at Zurich Airport), and Austrian Airlines (at Vienna Airport).

Investors

In the financial year 2013 the Lufthansa Group provided its investors with timely, comprehensive, and objective information as usual. We make every effort to earn and maintain the trust of our shareholders by giving them an up-to-date and transparent picture of the Group and its prospects. Members of the Executive Board and employees of the Investor Relations department were on hand at the quarterly conferences, 38 road shows, and nine investors' conferences to take questions and provide information about the Lufthansa Group's performance. They used these occasions also to conduct more than 300 individual and group discussions. Our corporate program SCORE, the performance of Lufthansa German Airlines, and the transfer of our decentralized services to Germanwings were each explained in two additional events in June and October. German private investors were another special focus. Representatives of Investor Relations gave presentations in 2013 at four forums tailored specifically to private investors. These events were complemented by Shareholder Information, which was published twice in 2013. As well as the regular annual and quarterly reports, the Lufthansa Group publishes *Investor Info* on a monthly basis to inform the capital markets of trends in the airlines' traffic figures and current topics from across the Group. In addition, bondholders and providers of outside capital received the publication *Creditor Info*, which contains information relevant to their interests, several times a year on request. All publications, financial reports, presentations, background information, talks, and current news are available also, to anyone who is interested, on the Lufthansa Group's homepage on the World Wide Web.

www.lufthansagroup.com/investor-relations

Employees

After the Lufthansa Group introduced numerous new dialogue formats for its employees at home and abroad in 2012 (see also *Balance* 2013, page 28), these were continued and further developed in 2013. Another focus was the formats used for the Executive Board's dialogue with managers. The reporting year saw an increase in the use of Web-based formats, which aim to guarantee maximum accessibility and make personal exchange of information with top management possible. At the same time, the established *Town meetings* at various Lufthansa Group locations once again provided a platform for exchange between management and employees of the Group companies. Numerous business segments within the Lufthansa Group also implemented dialogue formats of their own, including, for example, Lufthansa Technik with its new series of *MITeinanderREDEN* ("Join the discussion") events. In 2013 the company also continued its Dialogue Cockpit events and established the new *Purser Forum 2013* series of events.

Neighbors, municipalities, and politics

We want to do our part to create a competitive transportation infrastructure for the German economy. For this reason we use regional and national forums to highlight for opinion-makers and political decision-makers the role of global aviation in an intermodal transportation scheme. One example of this was the first *German Mobility Conference* in Frankfurt am Main, in which we participated in 2013.

The Lufthansa Group has long maintained an extensive dialogue with representatives of Germany's federal and state governments. We bring our practical knowledge to bear in various projects and undertakings. At the same time, we work at the international level to make our position clear in regard to legal and regulatory requirements. One of our most important joint efforts concerns, for example, the planned uniform airspace over Europe.

We also maintain a vigorous dialogue with mayors and public authorities in the communities surrounding our most important company locations. Since 2008 we have, for example, taken an active part in the *Airport and Region* forum in Frankfurt for the purpose of developing, in cooperation with participating partners, effective measures for protection against noise.

At Lufthansa Cargo's third *Cargo Climate Care* environmental conference on April 24, 2013, numerous industry experts reported on and discussed megatrends in logistics and the environmental requirements arising from them. This took place partly on the basis of a study that considered various future scenarios for the logistics industry. ↙

04
Lufthansa Cargo's third *Cargo Climate Care* conference at the prestigious Senckenberg Museum in Frankfurt am Main.

05
The Lufthansa Group took part in the first *German Mobility Conference* in Frankfurt am Main in 2013.

06
The Lufthansa Group opened the Lufthansa Aviation Center at Frankfurt Airport as part of the *Kunst privat!* ("Private art!") campaign.

07
The web conference is an up-to-date medium for dialogue which the Lufthansa Group uses to reach a broad target group quickly.

[→ 08]

[→ 09]

08
Thanks to *sharklets*, the Lufthansa A320 is always more fuel-efficient in flight, with fuel savings of up to 4%.

09/10
In 2013 the Lufthansa Group ordered highly fuel-efficient Boeing 777-9X [→**09**] and A350-900 [→**10**] aircraft, making its entry into the 2-liter class.

25%

less fuel

20%

reduction in unit costs

[→ 10]

Fleet development
We turn visions into reality: 2.9 liters of kerosene per 100 passenger kilometers

The greatest contributor to more efficient flight operations is investment in technological progress. That is why the Lufthansa Group buys the most advanced and environmentally friendly aircraft. Currently the Group is engaged in the largest fleet renewal program in its history.

As 2013 came to a close, there were 261 aircraft on our list of orders Group-wide that were scheduled for delivery by the end of 2025. This represents an investment of EUR 32 billion at list prices. The new aircraft are extremely fuel-efficient and offer ultimate passenger comfort. In addition, the power and efficiency of the new machines are such that the noise burden on people living in the vicinity of the major hubs is markedly reduced. The aircraft on order have a considerably smaller noise footprint in comparison to their predecessors (see also our focus topic "More quietly into the future," page 08). A modern and well-structured fleet is the basis for economic success. It ensures that we retain our advantage in a highly competitive market environment.

Entry into the two-liter class on long-haul flights

In September 2013 the Lufthansa Group ordered 59 state-of-the-art aircraft: 34 Boeing 777-9X and 25 Airbus A350-900 aircraft will be joining the Lufthansa Group's long-haul fleet. Delivery of the aircraft is set to begin as early as 2016. By 2025 they will have replaced older Boeing 747-400 and Airbus A340-300 aircraft. This most recent order represents an investment of EUR 14 billion at list prices and is the largest single private investment in German industrial history. In macroeconomic terms, this investment will secure some 13,000 jobs within the Lufthansa Group alone, added to which will be positive effects on employment among our partners in the aviation industry and other suppliers.

The A350-900 and Boeing 777-9X aircraft will fly more fuel-efficiently in terms of kerosene consumption per passenger per 100 kilometers than any other comparable type of aircraft. The 59 new aircraft will consume on average a mere 2.9 liters of kerosene. That is about 25% less than the figure for the aircraft available today. This will have an equally positive effect on the atmospheric CO_2 balance. The unit costs are roughly 20% less than for previous models. The harmony of ecological and economic goals is especially striking in this case. This order underscores the company's wish to invest in the newest technology for the sake of the environment.

Lufthansa's last propeller flight

October 26, 2013 marked the end of an era for Lufthansa. On that date, Lufthansa's regional subsidiary Air Dolomiti completed its last flight with a propeller plane, an ATR 72-500. The decommissioning of older propeller aircraft is a further step in the process of modernizing and consolidating the European fleet. In the future, Lufthansa's regional fleet will be limited exclusively to Embraer 190/195 and Bombardier CRJ700/900 jet aircraft, which can seat 70 or more passengers. Within the Lufthansa Group, only Austrian Airlines still has propeller aircraft in service, the modern DHC 8 turboprops in their newest version, the Q400. By the end of 2015, Lufthansa will also take its remaining Boeing 737 aircraft out of service.

Low-noise and highly fuel-efficient engines for the A320neo family

Over the past few years the Lufthansa Group has ordered a total of 100 aircraft in the Airbus A320neo family ("neo" stands for "new engine option"). Sixty aircraft of this type are equipped with PW1100G engines from Pratt & Whitney, 40 others with LEAP-1A engines from CFM International. These two engines are comparable in their flight performance and environmental compatibility values, delivering, for example, yet another marked improvement in fuel efficiency. In comparison to their predecessors, they need roughly 15% less fuel and emit less carbon dioxide accordingly.

The Group will receive delivery of a total of 23 aircraft of the latest generation yet this year: six Boeing 747-8 long-haul aircraft, two Airbus A380s, two Boeing 777-Fs, an A330, and 12 planes in the A320 family.

Lufthansa Cargo takes off with the Boeing 777 freighter

In November 2013, 41 years after the legendary jumbo freighter first took to the skies, Lufthansa once again launched a new era in air freight service with a flight to New York. On that day, the first Boeing 777 freighter operated by Lufthansa Cargo took off in scheduled service. Lufthansa Cargo ordered a total of five of the new twin-engine freighters from American aircraft manufacturer Boeing, two of which were put into service in the reporting year. The specific CO_2 emissions from the Boeing 777-F are nearly 20% less than those of the MD-11 cargo aircraft that Lufthansa Cargo also operates. The *Triple Seven* is considered the most modern, efficient, and quietest freight aircraft in its class. According to the manufacturer, it offers greater efficiency and capacity than any other twin-engine freighter, especially on long-haul flights. The cargo airline AeroLogic, in which Lufthansa Cargo holds a 50% interest, also has a fleet of state-of-the-art and efficient Boeing 777 cargo aircraft.

Further investments of other Group airlines

Swiss: Quieter and more fuel-efficient travel with the CSeries beginning in 2015

Beginning in 2015, Swiss International Air Lines will take delivery of 30 CSeries aircraft from Bombardier, which will replace the Avro RJ100 regional aircraft currently in operation.

Germanwings

Germanwings, the Lufthansa Group's quality provider in the low-cost segment, operates a fleet of Airbus A319/A320 aircraft. In 2013 the airline received four new aircraft in this series. Two more aircraft of this type will be added to the fleet in 2014.

Austrian Airlines

Austrian Airlines stepped up its efforts to create a more homogeneous European fleet of aircraft in the Airbus A320 family. In 2013 the airline removed the Boeing B737 from service entirely. Beginning with the summer flight schedule for 2014, another Boeing 777-200 was added to the fleet for long-haul routes.

A fleet of 622 aircraft as of December 31, 2013

The Lufthansa Group put 31 new aircraft into service in 2013. As of December 31, 2013, the Group owned 622 aircraft. The Lufthansa Group's fleet comprises the aircraft belonging to Lufthansa (including Germanwings and regional partners), Swiss, Austrian Airlines, and Lufthansa Cargo. All Lufthansa Group aircraft are continually being optimized to reduce noise emissions and fuel consumption. The average age of the aircraft in the Group's fleet (operating fleet) was 11 years as of the end of 2013.

Uniform basic standards in the cabin bring cost benefits

The Lufthansa Group has adopted uniform basic standards for its airlines when it comes to equipping the aircraft and their cabins. Bundling interests and pooling purchasing power in this way leads to cost benefits when ordering aircraft and replacement parts, for example. In addition, it allows maintenance procedures to be standardized. The basic version of an aircraft as agreed within the Group provides the airlines with a basis for individual detail specifications. These specifications should differ across airlines as little as possible in the interests of flexibility.

The Lufthansa Group fleet

As of December 31, 2013 (changes compared to 2012)

	In possession[1]		Age[1]		In operation[2]		Age[2]	
Lufthansa	360	(±0)	10.5	(−0.3)	273	(−3)	11.6	(−0.6)
Lufthansa CityLine	30	(−4)	9.8	(+0.5)	61	(+1)	6.1	(+0.5)
Air Dolomiti	5	(−1)	11.9	(+0.7)	10	(−6)	2.9	(−5.4)
Augsburg Airways[3]	0	(±0)			0	(−14)		
Contact Air[4]	0	(±0)			0	(−2)		
Eurowings	0	(−1)			23	(±0)	3.7	(+1.0)
Germanwings	36	(+4)	7.2	(+0.2)	44	(+12)	9.5	(+2.5)
Swiss (including Edelweiss Air)	94	(+2)	12.3	(+0.6)	92	(+1)	12.3	(+0.5)
Austrian Airlines	77	(−7)	14.7	(+1.2)	74	(−4)	14.6	(+1.0)
Passenger Airline Group business segment	**602**	**(−7)**			**577**	**(−15)**		
Lufthansa Cargo	20	(+2)	14.1	(−0.6)	19	(+1)	13.8	(−0.9)
Logistics business segment	**20**				**19**			
Lufthansa Group	**622**	**(−5)**	**11.2**	**(+0.1)**	**596**	**(−14)**	**11.0**	**(±0.0)**

1 Aircraft in the Group's possession.
2 Aircraft operated by the Group.
3 Augsburg Airways flew on behalf of Lufthansa until the end of the summer timetable 2013.
4 The cooperation with Contact Air ended in September 2012.

Sustainability in the procurement process

As a globally operating aviation company, the Lufthansa Group stands for fair competition, integrity, and responsible action. The Group is unreservedly committed to compliance with all applicable laws, directives, and regulations. The Lufthansa Group expects this not only from its employees, but from its suppliers and competitors as well.

Lufthansa assumes corporate responsibility by integrating sustainability into the procurement process. At the same time, we minimize risks and thereby avert potential damage to the company. For us as a globally operating Group with nearly 500 subsidiaries and affiliated companies, this is a challenging task.

Group purchasing guidelines approved

In May 2013 the Executive Board approved Group purchasing guidelines requiring suppliers to enter into a commitment to social and ecological responsibility. The guidelines are meant as an umbrella directive for all of the Group companies' purchasing guidelines. They also serve as a manual for purchasers and all employees with contacts in the procurement market. They are regularly updated and adjusted.

The guidelines prescribe, among other things, that the following duties be included in contracts with suppliers:

- Compliance with the 10 principles of the UN Global Compact. The principles range from respect for human rights through commitments to labor standards and environmental protection to working against corruption. In 2002 Deutsche Lufthansa AG became the first aviation company to join this strategic United Nations initiative for companies, thereby agreeing to uphold the 10 principles formulated by it (see the *Global Compact* overview on page 27).
- Compliance with the International Labour Organization's (ILO) four fundamental principles for labor. These concern freedom of association, the right to collective bargaining, the elimination of forced labor and child labor, and prohibition of discrimination in respect of employment and occupation.
- Consent to announced and unannounced audits of the supplier by companies of the Lufthansa Group.
- Recognition of Lufthansa's right to terminate the contractual relationship in the event of a breach of the aforementioned agreements. Suppliers must also observe the Lufthansa Group's Environmental Protection Guidelines.

By including these commitments in contracts, the Group ensures that the issue of sustainability is taken seriously and that sustainability becomes a way of life across the supply chain. To familiarize our purchasers with the Group purchasing guidelines, we train them in our *Procurement Academy*, which provides continuing education opportunities for employees from throughout the Group.

Lufthansa

Local value creation

The major German air travel hubs are of immense macroeconomic importance to all of Germany, where aviation plays a major economic role, and to its regions. Frankfurt Airport in particular, one of the world's leading passenger and cargo hubs, is very important to the export-oriented German economy and the entire German logistics industry by virtue of its central location. Moreover, the Lufthansa Group's other hubs—Munich, Zurich, Vienna, and Brussels—each make an important contribution to local value creation.

The airlines in the Lufthansa Group ensure jobs for tens of thousands of people in their home countries and are an important factor in the gross domestic product (GDP). They are a basic necessity for these countries' export companies in particular. In Germany, for example, more than 73% of industrial companies ascribe an important or very important role to aviation, according to a survey conducted by the ifo Institute in March 2013 in which more than 7,000 companies were asked about the relative importance of aviation. The results are representative of the German economy. Of particular interest is the fact that those sectors that have been experiencing above-average growth in Germany—such as mechanical engineering, the pharmaceutical industry, and the automotive industry—are precisely those that attach the greatest importance to having a first-class transportation link to the air travel system. The carrier is therefore of particular importance to those economic sectors that have contributed substantially to growth and prosperity in recent years. Industry's gross value added amounts to approximately 23% of total value added in this country and around 15% in the EU as a whole.

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Local value creation as exemplified by our Frankfurt hub

Some 78,000 workers are employed at Frankfurt Airport, making it one of Germany's largest local workplaces. Frankfurt is also the home airport of Deutsche Lufthansa AG, which, with more than 36,000 employees, is Hesse's largest employer. Further jobs have been created at Frankfurt Airport thanks to the openings of the northwest runway on October 21, 2011, and the new Terminal A-Plus. Thus expansion of Frankfurt Airport has been a source of further economic growth. It also enhances the location's attractiveness to international companies and improves the local economy's links to the international division of labor. With more than 58 million passengers and more than 2 million tonnes of cargo passing through it annually, Frankfurt Airport is a central hub for people and goods.

It is all the more important, then, that Frankfurt—the most important export and logistics location in Germany—not be further curtailed. This applies especially to restrictions on hours of operation. As global competition becomes ever more intense, the companies of the Lufthansa Group depend on competitive operating hours at their hubs. Frankfurt is already subject to the most severe operating restrictions of any major airport worldwide. Additional restrictions could further strengthen foreign competitors to the detriment of domestic airlines and, ultimately, to local economic value creation. If Frankfurt is to remain among the world's most important hubs, the airport needs long-term, internationally competitive prospects.

Strengthening the region

In 2013 Deutsche Lufthansa AG and Fraport AG once again awarded numerous contracts to companies in the Rhine-Main region. The regional contract volume for the two companies came to more than EUR 2 billion. These expenditures create jobs and contribute to local value creation. Lufthansa in particular contributes to securing employment and value creation in the Rhine-Main region with its more than EUR 1.5 billion in expenditures for regional suppliers and services. Numerous companies in different industries in the Rhine-Main metropolitan region profit in everything from the security equipment at the airport to the locally cultivated cuisine and wine on the on-board menu.

The great macroeconomic importance to the region of Frankfurt as an international hub was recently confirmed by a report commissioned by Fraport AG from the independent Swiss consulting and research firm Infras. According to this report, Germany's largest aviation hub secures roughly 116,000 jobs with businesses and companies on the airport's premises ("direct effects") and with suppliers and service providers, including those outside the region, further along the value chain ("indirect effects"). This is equivalent to 2.9% of the total employment figure for Hesse. The value added arising from these employment effects amounts to EUR 9.1 billion, or 3.4% of the entire Hessian economy. Currently, every 30th euro in Hesse is exchanged directly at or because of Frankfurt Airport. Moreover, the airport has contributed to the creation of some 59,000 further jobs through the consumption patterns of those with disposable income derived from employment with airport businesses and suppliers. Some 175,000 people therefore benefit from the positive economic effects of aviation in Frankfurt.

11
Terminal A-Plus at Frankfurt Airport.

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Lufthansa ensures sustainable and forward-looking investments in infrastructure at the Munich location

The largest expansion project currently underway with Lufthansa participation is the construction of the satellite terminal at Munich Airport, which in the first phase of expansion is designed for 11 million passengers per year. The satellite terminal has been conceived as a *green satellite*. The ambitious target set for the building is a 40% reduction in CO_2 emissions as compared to the two existing terminals. The new satellite building, like the existing Terminal 2, is being built, financed, and operated by Flughafen München GmbH and Deutsche Lufthansa AG in a ratio of 60 to 40, respectively, between their contributions. The rod-shaped satellite terminal will have a total of 52 gates on three passenger levels and allow passengers convenient access to the aircraft with 27 aircraft parking positions near the building. Construction of the building is scheduled to be completed in 2015.

At Munich Airport, the possibilities for further development in terms of capacity are reaching their limits because of limitations imposed by the current two-runway system. The Bavarian Administrative Court (Verwaltungsgerichtshof), with its judgment of February 19, 2014 approving plans for a third runway at Munich Airport, has made an important decision for the aviation industry in Germany and for development of the region. This judicial go-ahead for one of the most important infrastructure projects in Germany clears the way for further development of Munich as a base for air travel on a scale commensurate with demand. The third runway is key to the future viability of the airport and of Lufthansa at its Munich location. It lays the cornerstone for long-term and sustainable growth. This will result in a better competitive position in the international market, and it is above all the basis for securing existing jobs and creating new ones. A third runway in Munich is the only way to bring about real capacity expansions in Germany's aviation infrastructure.

The Lufthansa Group recognizes that people living in proximity to airports require peace and quiet, particularly at night, and it takes this requirement very seriously. The company has been working for years to reduce noise emissions from air traffic over areas around airports and is continually investing in active noise protection measures. For more information, read our focus topic "More quietly into the future" (see page 08).

With more than 10,000 employees, Deutsche Lufthansa AG is the largest employer at Munich Airport and an engine of value creation for the region. Numerous contracts were awarded in 2012 to companies in the immediate vicinity of the airport. Altogether, the regional contract volume for all companies of the Lufthansa Group based at Munich Airport and for purchases of goods and services directly from other companies at the airport amounted to more than EUR 1 billion. These expenditures secure jobs and value creation in the region.

When the administration of Lufthansa CityLine moves in the second half of 2014, some 300 high-skill jobs will be relocated from Cologne to Munich, further strengthening the Munich location. It will also better serve the airline's focus on continental feeder flights to Lufthansa's Frankfurt and Munich hubs, especially those to the Munich hub.

Zurich hub ensures value creation

Swiss aviation and the businesses that supply it employ approximately 180,000 people. The resulting value added amounts to 30 billion Swiss francs, the greater part of which is attributable to operations at Zurich Airport. In 2012 Flughafen Zürich AG commissioned a study on the macroeconomic importance of Zurich Airport from Arbeitsgemeinschaft Infras/BAK Basel. In addition to an analysis of Zurich Airport's *direct* and *indirect* effects on employment, which have already been mentioned, its contribution to value creation, its relevance to tourism, air cargo transport, the export trade, and the factor of location, *accessibility* also came under consideration. The study provides evidence for the great economic importance of this air travel hub for Switzerland.

Hamburg Aviation cluster

The Hamburg metropolitan region is, along with Seattle, Washington, and Toulouse, France, one of the aviation industry's most important centers worldwide. With 40,000 employees, more than 9,000 of whom work for various companies of the Lufthansa Group, aviation is the largest industrial sector in the region. One of the crucial factors in the success of the aviation industry in Hamburg is the level of cooperation across companies. Altogether, some 300 aviation companies, institutes of higher learning, and public authorities cooperate within the *Hamburg Aviation* industry cluster alongside the three giants of the industry: Airbus, Lufthansa Technik, and the airport. Lufthansa Technik devotes substantial resources to research and development along with training and continuing education.

12
Lufthansa's Munich hub.

13
Zurich: An important hub for Swiss.

14
Hamburg Airport: The largest base of operations and the headquarters of Lufthansa Technik AG.

Climate and Environmental Responsibility

Climate and environmental responsibility is paramount in our value-based corporate management. Progress is a success factor in economically and environmentally.

3.91	114,152	1,000	20
liters of kerosene consumed per passenger per 100 kilometers	fewer tonnes of fuel consumed than in 2012	ideas and projects to increase fuel efficiency	years of involvement in climate research

Strategy and management
Furthering mobility responsibly

The Lufthansa Group's corporate management practices are guided by values, and central to those practices is a sense of responsibility for the climate and environment. To achieve steady reductions in the effects our business operations have on the environment, we make as efficient use of the resources we need as possible.

The core business of the Lufthansa Group is the transportation of our passengers. The most significant effects on the environment therefore result from our flight operations. For our flights we need kerosene, combustion of which produces carbon dioxide (CO_2) and other emissions (such as nitrogen oxides and unburned hydrocarbons). For every tonne of kerosene that we conserve, 3.15 fewer tonnes of CO_2 are released into the environment. Accordingly, we have been directing our environmental protection efforts towards continual improvement in fuel efficiency and, ultimately, a reduction in the size of our *CO_2 footprint*. Management of energy and resources on the ground and in our catering, our involvement in research, and active noise protection are important areas where we can apply these efforts.

Energy efficiency in flight operations is of considerable relevance to our success in terms of economic and ecological criteria. Fuel costs across the Group as a whole now account for more than 22% of our operating costs and therefore constitute an important cost factor for the Lufthansa Group. Successfully implemented measures to lower fuel consumption therefore have an especially positive effect on our corporate success while at the same time improving both our results and our environmental balance sheet.

Energy efficiency in flight operations is of considerable relevance to our corporate success in terms of economic and ecological criteria.

The Lufthansa Group is committed to making mobility, now and in the future, as environmentally compatible for its customers as possible. We see the constant growth in the need for mobility worldwide as a particular challenge to this commitment. This trend is being intensified mainly by the increasing need for mobility in the newly industrialized countries.

According to a prognosis made by the International Air Transport Association (IATA) in December 2013 (Airline Industry Forecast 2013–2017), passenger volume will increase by 31% worldwide by 2017. The number of passengers, accordingly, is expected to increase from 2.98 billion in 2012 to 3.91 billion in 2017. This is equivalent to an annual growth rate of 5.4%. During the period from 2012 to 2013, the number of passengers

Strategic environmental program for 2020 →

The Lufthansa Group has set itself ambitious goals for climate and environmental responsibility. In 2008 we launched a strategic environmental program with which we hope to achieve further progress in climate and environmental responsibility by 2020. The Lufthansa Group has successful outcomes to show for its work in every field of the environmental program. These include, apart from billions invested in modern and quieter aircraft, our pioneering accomplishment in the world's first long-term testing of alternative fuels (biokerosene) in 2011. In addition, we are investing in optimized flight procedures and ground processes, ecological building, and expansion of the environmental management systems in the Group companies. Since the strategic environmental program was implemented in 2008, we have been able to increase fuel efficiency in our flight operations by more than 7%, and by as much as 36.2% as compared to when measurements began in 1991. If the Lufthansa Group were still flying today with the aircraft it had in its fleet in 1991, it would have consumed roughly five million more tonnes of kerosene in 2013, thereby emitting roughly 16 million more tonnes of CO_2. This would be 60% more than today.

grew by 5.2%. This is in line with the average rate of increase over the last 30 years.

For this reason, airlines are also faced with the challenge of further increasing the environmental compatibility of flying despite steady growth in transport performance. Despite significant growth rates, aviation's share of worldwide CO_2 emissions from the combustion of fossil fuels has been declining for years. In 2010 this share was just under 2.45%, according to the last publication of the International Energy Agency (IEA) in 2012.

→

Organization of climate and environmental management

The climate- and environment-related goals, strategies, and measures across the Group are coordinated by the *Group Environmental Issues* department, which is part of the Corporate International and Government Affairs staff department. There is regular exchange with Corporate Strategy. In addition, all of the larger companies of relevance to environmental matters have their own environmental departments, an environmental commissioner, or a coordinator.

The Lufthansa Group's Environmental Forum meets twice a year to give the company's experts in this area the opportunity to discuss current issues and take advantage of synergistic effects. In February 2014 the Lufthansa Group initiated an internal energy forum in addition. Experts from all divisions of the company take part in the knowledge transfer and best practice exchange so that we can achieve further increases in efficiency on the ground in addition to our environmental goals in the airspace.

We have teams of experts working on fuel efficiency and alternative fuels. In recognition of the importance of the issue of fuel efficiency and CO_2 emissions, the Lufthansa Group has had its own *Fuel Efficiency* department since 2013. Experts from various Group companies are working continuously to develop and implement measures to reduce fuel consumption. Closely associated with the subject of fuel efficiency is the testing and use of alternative fuels in flight operations. The Lufthansa Group is currently involved in various projects for the future in this area.

Group-wide standards and guidelines

The Executive Board approved as early as 1996 guidelines for environmental protection that applied all across the Group. This made the Lufthansa Group a trailblazer in the aviation industry. The guidelines, which are binding on all employees and at all locations, ensure that all companies rigorously pursue the common goal of environmental protection and continually improve environmental care.

Environmental management systems in the Group companies

The Lufthansa Group has set itself the goal of continually improving environmental management in the companies and at the Group level. Below is an overview of the status quo of the environmental management systems in the Group companies:

→ **Lufthansa Technik** has had its locations in Germany certified to the international environmental standard ISO 14001 since 1999. Since then it has also had an occupational safety management system that has been validated according to the OHSAS 18001 occupation safety specifications. At the end of 2013 the audit for recertification in the quality, environment, and occupational safety categories was completed successfully. All Lufthansa Technik locations will be certified by the end of 2015 under a worldwide program. The ISO 14001 international environmental management standard sets globally accepted standards and requirements for an environmental management system. The emphasis is on a process of continual improvement with the aim of achieving an organization's defined environmental goals.

At the local level Lufthansa Technik is working in the field of environmental management with various organizations. Since the initiative began in 2003, Lufthansa Technik has been active in the Environmental Partnership in Hamburg. The coalition of industry, politics, and administration is working to encourage companies to take responsibility for environmental protection. Lufthansa Technik is a member of corresponding associations in Hesse and Brandenburg as well.

→ **Lufthansa Cargo** was certified at its Frankfurt location to the ISO 14001 environmental standard for the first time in 2008. The Lufthansa Group's logistics specialist was certified at all German locations in 2010. The certification of the environmental management system was reconfirmed by external auditors in 2013 in the course of a supervisory audit.

- **Lufthansa CityLine** has had ISO 14001-certified environmental management systems at its company locations since as long ago as 1999. In 2012 the airline also received, for the fifth time in a row, the certificate of compliance with the European eco-audit regulation EMAS. Both environmental management systems were certified by the supervisory audit in 2013.

- **LSG Sky Chefs** has a management system that is based on the ISO 14001 standard and is the industry leader in aviation catering. This system enables the company to continually make improvements within its worldwide network. However, there are no plans at present to have the system certified. LSG Sky Chefs is working on numerous energy-relevant measures that will enable it to implement in its six international management regions by 2015 the environmental program passed by the Executive Board in 2013.

- **LZ-Catering** is participating in the Ökoprofit ("Eco-Profit") project in both Hamburg and Frankfurt. Its primary aim is to systematically implement cost-reducing environmental measures in the LZ-Catering facilities. For this purpose, various resources, such as water, energy, and even waste materials, are analyzed in order to optimize or reduce their consumption or production. The company is working also on building an environmental management system that meets the requirements of ISO 14001 and is designed to ensure a systematic approach to all matters of environmental protection.

Linking responsibility to financial incentives

The Lufthansa Group's Executive Board and managers receive their variable remuneration partly on the basis of sustainability parameters. These include environmental criteria such as fuel efficiency and CO_2 emissions.

Key areas of action in climate and environmental protection

Fuel consumption and emissions

In carrying out our environmental strategy, we rigorously follow the established four-pillar strategy of the air travel industry (see illustration on page 54). This comprises various measures aimed at reducing both kerosene consumption and CO_2 emissions. These measures range from technical progress through an improved infrastructure and operational measures to economic instruments. As an innovation driver in the aviation industry, we are involved also in numerous pathbreaking initiatives and research projects that will permanently improve the environmental compatibility of flying.

Our biggest successes are achieved by using modern aircraft. They make use of new engine technologies, improved aerodynamics, and greater use of composite materials to reduce weight. The amount of kerosene consumed depends primarily on the weight of the aircraft. In the past several years aircraft manufacturers have succeeded in building significantly lighter and aerodynamically optimized aircraft. By continually investing in new aircraft, the Lufthansa Group ensures that it always has the most efficient airplanes available on the market.

Energy and resource management on the ground and in catering

In addition to our efforts to reduce environmental effects in the air, we also want to work as efficiently as possible on the ground. In this connection we focus on developing and testing electronic propulsion technologies for aircraft taxiing and towing on the ground. Lufthansa Technik and the subsidiary Lufthansa LEOS are especially active in this area. Apart from this focus, we are also pursuing the goal of continually reducing energy consumption on our real estate.

As the Lufthansa Group's catering specialist, LSG Sky Chefs focuses its attention mainly on the issues of waste and water and energy consumption. Using various key performance indicators, the Lufthansa Group subsidiary is continually reviewing and controlling its consumption of these resources and its progress towards its goals.

Research activities

Progress needs research. The Lufthansa Group therefore regards this as one of its key areas of activity. Together with our system and project partners, we have been actively involved for years not only in noise research but also in research into alternative fuels. Lufthansa Technik also has been investing more in research work and the development of product innovations with which to cultivate new markets and customers. Lufthansa Technik is always focused on preparing for new aircraft types and technologies. New materials and technologies offer great opportunities for making the Lufthansa Group's services even more ecologically efficient, cost-effective, and attractive to customers. The previously mentioned research project at Frankfurt Airport is devoted to testing electro-mobile propulsion concepts for ground travel (see page 61).

For more than two decades the Lufthansa Group has been involved also in climate research, and it has been helping scientists evaluate and refine their climate models (see page 66).

Active noise protection

The Lufthansa Group is involved in active noise protection in a variety of ways and makes sure that the Group's fleet significantly exceeds the most stringent standards worldwide. This year we are devoting a special chapter to this topic in the present report. It offers a summary of the numerous measures we have taken to reduce aircraft noise.

→ You can read more on this in the chapter "More quietly into the future" from page 08 onwards.

Fuel consumption and emissions
The Lufthansa Group reduces fuel consumption and sets another fuel efficiency record

The Lufthansa Group is doing its utmost to keep the impact of its business operations on the environment as low as possible. We are investing billions in modern and fuel-efficient aircraft and promoting innovative processes, methods, and technologies. This allows us to save on fuel and avoid emissions that pollute the environment.

For the Lufthansa Group, fuel efficiency in flight operations is a key success factor in both an economic and ecological sense. Our continued dedication to fuel efficiency will ensure our long-term corporate success. At the same time, we are living up to our responsibility as a globally operating company by keeping the effects of our business activities on the environment as low as possible. This is a commitment that we have defined also in our corporate strategy: "economically, ecologically and socially balanced and sustainable business."

Our basis for further increases in efficiency is the industry's accepted four-pillar strategy for environmental protection (cf. illustration on page 54). This strategy agenda covers the entire spectrum of feasible measures.

Replacement of the customary kerosene with alternative fuels also creates great potential for improving the environmental balance sheet. At the same time, this presents the Lufthansa Group with several challenges. Among them are the availability of alternative fuels in adequate quantities, non-existent supply chains, a competitive price, and lengthy, as yet uncompleted approval processes.

→

Increasing fuel efficiency and reducing emissions

The Lufthansa Group has set itself ambitious goals for fuel efficiency and reductions in emissions. We aim to lower our specific fuel consumption and associated CO_2 emissions by 25% as compared to 2006. In addition, the Lufthansa Group supports the ambitious goals of the air travel industry as set forth in an international statement of commitment in 2008 [→ 01]:

- An increase of 1.5% per year in energy efficiency until 2020
- CO_2-neutral growth from 2020
- A 50% reduction in net CO_2 emissions by 2050 as compared to 2005

In 2013 the Lufthansa Group made further progress in reducing fuel consumption and emissions and has some impressive figures to prove it.

Measures to achieve CO_2 reduction targets [→ 01]

Source: BDL, based on industry strategy

Our most significant successes

Less fuel consumption and fewer CO_2 emissions again in 2013

Despite an increase in transport performance of 2.3%, we reduced absolute fuel consumption for the second year in a row, with 1.3% less fuel consumed in 2013 than in 2012. In absolute terms, the Group consumed 114,152 fewer tonnes of fuel as compared to the previous year, thereby reducing the amount of carbon dioxide (CO_2) released into the environment by more than 350,000 tonnes. This equates to approximately the quantity of CO_2 emitted annually by roughly 50,000 single-family homes with oil-fired heating. This is a clear sign that our measures to increase efficiency are working and the overall impact of the Lufthansa Group's flight operations on the environment is diminishing. We have successfully continued our decoupling of transport performance from fuel consumption. The Lufthansa Group's transport performance grew by 339% from 1991, while kerosene consumption increased by only 180% [→ 03].

New efficiency record: Airlines in the Lufthansa Group make it below the four-liter mark

For the first time, the Lufthansa Group made it below the four-liter mark with 3.91 liters of kerosene consumed per passenger per 100 kilometers (l/100 pkm), a 3.8% improvement over the previous year. This means that the industry target of 1.5% per year until 2020 for increased efficiency was surpassed by more than double and exceeded by a more substantial amount than even a year earlier. The specific consumption of the individual airlines of the Lufthansa Group is illustrated in the pie charts [→ 02]. In the case of freight transport, we were likewise able to reduce specific consumption and associated CO_2 emissions in the logistics segment. Fuel consumption fell from 0.29 l per freight tonne kilometer in 2012 to 0.28 l in 2013. We were able to achieve this by consistently adhering to environmentally friendly measures and making optimum use of payload space.

Calculating the CO_2 balance

The Lufthansa Group measures its CO_2 emissions according to the categories of the Greenhouse Gas Protocol (GHG Protocol). This calls for dividing emissions into three main categories (called *scopes*):

- Scope 1: Direct emissions from combustion of fuels in one's own facilities and transport means
- Scope 2: Indirect emissions from the consumption of purchased energy (electricity, heat, cooling)
- Scope 3: Indirect emissions, for example from the transport-related activities of our subcontractors and suppliers. This category includes other indirect emissions resulting, for example, from the manufacture of capital goods purchased from third parties (such as aircraft), products and services, and the commuting activities of employees. Added to this are emissions from the production and transport of fuels and energy.

We calculate the direct emissions that are covered by the European Emissions Trading System (EU-ETS) according to its requirements.

The *CO_2 footprint* results make it easier to assess the company's own contribution to climate change, however. Hence the CO_2 footprint can provide ideas for internal improvement processes.

A new Fuel Efficiency department

On May 1, 2013 the Lufthansa Group established the new *Fuel Efficiency* department under the management of Senior First Officer Jens Ritter. Its job is to coordinate the various measures we take to reduce the Lufthansa Group's fuel consumption. The team also assumes responsibility for auditing the fuel efficiency units. It directs all of the activities undertaken to improve the fuel efficiency of the airlines in the Lufthansa Group and of Lufthansa Technik. In addition, the department

Specific fuel consumption
Passenger transportation

[→ 02]

Active fleet in 2013, in liters per 100 passenger kilometers (l/100 pkm)

Definitions of traffic areas ● Long-haul more than 3,000 km ● Medium-haul 800 to 3,000 km ● Short-haul less than 800 km

Group fleet

Average specific fuel consumption in l/100 pkm (center of the circle) and proportion of the entire passenger fuel consumption of the active fleet contributed by each traffic area (segments of circle) in 2013

Lufthansa

Germanwings

Swiss

Austrian Airlines

Specific fuel consumption of passenger transportation compared

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

	2013	2012	Changes in %
Group fleet	3.91	4.06	−3.8
Lufthansa	3.98	4.16	−4.2
Swiss	3.54	3.64	−2.7
Austrian Airlines	3.93	3.98	−1.3
Germanwings	4.22	4.55	−7.1

Specific CO_2 emissions of passenger transportation

Active fleet in 2013,
in kilograms per 100 passenger kilometers (kg/100 pkm)

	Long-haul	Medium-haul	Short-haul	Overall average
Group fleet	8.75	10.58	17.20	9.84
Lufthansa	9.14	10.50	16.81	10.03
Swiss	7.68	10.14	19.32	8.92
Austrian Airlines	7.34	11.26	17.25	9.91
Germanwings		10.64	10.31	10.64

Fuel dumps

2013

	2013	Changes compared to 2012
Events, total	31	+14
thereof medical reasons	13	+2
technical reasons	15	+11
other reasons	3	+1
Quantity, total	937 t	+110.8%

Decoupling of transport performance and fuel consumption

[→ 03]

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

Fuel consumption[1]

2013, in tonnes

	Passengers	Freight	Total	Share
Scheduled flights[2,3]				
Lufthansa	4,756,889	1,630,188	6,387,076	72.0%
Germanwings	276,464	0	276,464	3.1%
Swiss	1,079,405	383,781	1,463,186	16.5%
Austrian Airlines	559,066	78,981	638,047	7.2%
			8,764,774	98.8%
Third parties[4]	87,401	1,903	89,304	1.0%
Other flights[5]			14,375	0.2%
All flights			**8,868,453**	100.0%

Emissions[3,6]

2013, in tonnes

	Passengers	±2012	Freight	±2012	Total	±2012
CO_2	21,016,246	−1.2%	6,592,793	−1.6%	27,609,039	−1.3%
NO_x	99,782	−0.8%	31,309	−2.3%	131,091	−1.2%
CO	15,787	−2.9%	3,189	−1.9%	18,976	−2.8%
UHC	1,584	−4.7%	407	−6.5%	1,991	−5.1%

Share of third parties[4]

2013

Flights	2.7%
Passengers	1.6%
Tonne kilometers transported, TKT[7] (tkm)	0.6%
Fuel consumption (tonnes)	1.0%
CO_2 emissions (tonnes)	1.0%

Specific fuel consumption Passenger transportation

in liters/100 passenger kilometers

Specific fuel consumption Freight transportation[8]

in liters/tonne kilometers

Passenger transportation

CO_2 emissions
in kilograms/100 passenger kilometers

NO_x emissions
in grams/100 passenger kilometers

CO emissions
in grams/100 passenger kilometers

UHC emissions
in grams/100 passenger kilometers

Freight transportation[8]

CO_2 emissions
in kilograms/tonne kilometers

NO_x emissions
in grams/tonne kilometers

CO emissions
in grams/tonne kilometers

UHC emissions
in grams/tonne kilometers

1 Actual fuel consumption in tonnes from flight operations, based on all flight events. Recorded are consumption values from gate to gate, i.e. including taxiing on the ground, holding patterns, and detours in the air.
2 Scheduled flights, charter flights.
3 For the reporting year 2013, the following companies have been included in *Balance*: Lufthansa (incl. Lufthansa CityLine, Air Dolomiti, Eurowings, and Augsburg Airways), Germanwings, Swiss (incl. Edelweiss Air), Austrian Airlines, and Lufthansa Cargo. Excluding the services of third parties as the company can influence neither their performance nor the equipment operated (see table *Share of third parties*).
4 Includes flights operated by airlines that do not belong to the Group, which carry out services on Lufthansa's behalf at short notice, e.g. 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 125).
7 Excludes road feeder service 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.
9 Value corrected due to calculation error.

is responsible for introducing valid key performance indicators and mandatory reporting standards throughout the Group, and it continues to develop them further. It is also establishing a Group-wide innovation management program for fuel efficiency. Experts from all the various segments of the Lufthansa Group are working at full speed to develop measures to make the use of fuel as efficient as possible and thereby achieve an even greater dissociation between fuel consumption and transport performance. In addition to the ecological benefits, this will produce economic gains for us. The goal is to make a positive contribution of EUR 196 million to the Group’s bottom line by 2015 with the fuel efficiency measures.

Furthermore, a code of conduct passed in early 2014 provides that the projects to reduce fuel consumption are to be set up uniformly across the Group and that their data are to be recorded in a central reporting system. All of the Group’s fuel efficiency experts are networked together through an internal exchange of knowledge in the regularly occurring *Fuel Efficiency Group* (FEG) conference. To date the Fuel Efficiency Team has developed some 1,000 ideas and projects. In addition, it has already implemented 130 of the 280 measures contained in SCORE, our corporate program for the future (for details about SCORE see the chapter “Sustainable Business Practice,” page 25). For 2014 we made a decision to defer our search for creative ideas on how to further increase fuel efficiency in favor of implementing the SCORE measures.

04
SCORE poster on the subject of joint fuel purchasing.

Four pillars for climate protection

[→ 05]

1
Technological progress

- Innovation in aircraft and engine technologies
- Alternative fuels

2
Improved infrastructure

- Improved use of airspace
- Airport infrastructures adapted to needs

3
Operational measures

- More efficient aircraft sizes
- Optimal flight routes and speeds
- Optimized processes on the ground

4
Economic measures

- A global, sensibly designed, market-based system for reducing emissions to complement the other three pillars

Pure Sky
sky friendly energy

→

Technological progress

Innovations in aircraft and engine technologies
The most powerful lever for increasing efficiency is continual investment in the newest technologies, i.e. in modernizing the Lufthansa Group's fleet of aircraft (see "Fleet development," page 35). In September 2013 we ordered 59 ultra-modern long-haul, next-generation aircraft. This represented a capital investment of EUR 14 billion at list prices, the largest single private investment in German industrial history to date.

The new aircraft will be delivered gradually beginning in 2016. This will enable the Lufthansa Group to make a quantum leap in efficiency and enter the 2-liter class.

The A350-900 and Boeing 777-9X aircraft on order will fly more fuel-efficiently per passenger per 100 kilometers than any other comparable type of aircraft. On average, this newest generation of aircraft will consume only 2.9 l/100 pkm.

Research into alternative fuels
Alternative fuels with a substantially lower net CO_2 output are a crucial component in all future efforts to permanently reduce emissions. The use of alternative fuels in flight operations is therefore an important cornerstone of technical progress according to the four-pillar strategy. The Lufthansa Group did pioneering work in 2011 by running a long-term trial of biofuel in regular scheduled flight operations and demonstrated that biofuels can be used for that purpose without any problem.

With its continued involvement in numerous future-oriented projects focusing on alternative fuels, the Lufthansa Group is further consolidating its role as a trailblazer in this area. It applies its expertise to the assessment and analysis of potential alternative fuels, for example, lending its support to their development until they are ready for the market.

In 2013 we conducted a rig test at Lufthansa Technik in Hamburg. This test is part of the EU *Blending Study* project, for which Deutsche Lufthansa AG is the consortium leader. Experts involved in this project have been examining the possible impact on aircraft emissions and engine performance of blending farnesane, a new biokerosene component made from biomass sugars, with conventional kerosene.

05
Four pillars for climate protection: The Lufthansa Group is constantly increasing fuel efficiency with the aforementioned four-pillar strategy for climate protection. It comprises, in addition to technical progress such as the investment in the newest generation of fuel-efficient aircraft, testing and use of alternative fuels in flight operations. To this are added infrastructure improvements, such as optimum use of airspace and optimized airport infrastructure. Operational measures such as using more efficient aircraft sizes, introducing improvements to procedures on the ground, making better use of aircraft capacity, and flying optimum routes are also being taken to increase fuel efficiency in flight operations. As well as the three pillars already mentioned, economic instruments are used.

06
Lufthansa Technik conducted a farnesane rig test in Hamburg as part of the EU's *Blending Study* project.

Strict criteria for alternative fuels →

Gradually establishing an alternative fuel supply system is a step towards realizing the aviation industry's climate protection goals. The Lufthansa Group sets the highest standards for the use of alternative fuels, however. Before we use plant-derived fuel, for example, we must make sure that cultivation of the energy plants in question never ends up in competition with food production. An indispensable criterion for selecting suppliers is that their fuel must be produced in sustainable ways and certified accordingly. We accept certifications based on the International Sustainability and Carbon Certification (ISCC) or Roundtable on Sustainable Biofuels (RSB) standards. ISCC is the first government-recognized global certification system for sustainability and greenhouse gas emissions. The RSB standard places nearly the same requirements on biokerosene production, while its criteria are in part even stricter. Other conditions include a proven environmental benefit and adequate availability at an acceptable price.

System partners for fuel from alternative sources →

We are involved in several initiatives to help advance the development of alternative fuels and ensure their sustainability. The Lufthansa Group is a member of the Sustainable Aviation Fuel Users Group (SAFUG) and the Aviation Initiative for Renewable Energy in Germany (aireg e.V.). With Group company Swiss as intermediary, the Lufthansa Group also participates in the Roundtable on Sustainable Biofuels (RSB, Lausanne). Moreover, Lufthansa is active in the Flight Path 2020 initiative, whose goal is to produce 2 million tonnes of sustainable aviation fuel in Europe by 2020.

In the *Blending Study*, furthermore, the Lufthansa Group is also working with a specialty supplier that produces renewable fuels. The American company Gevo has provided the Lufthansa Group with its innovative *alcohol-to-jet* fuel (ATJ kerosene). With these samples we will be studying, in cooperation with the German armed forces' Bundeswehr Research Institute for Materials, Fuels and Lubricants, the blending behavior of conventional kerosene mixed with ATJ kerosene.

Research into and laboratory testing of alternative fuels are vital for advancing their commercial use in the airline industry. We aim to obtain approval for the innovative ATJ fuel this year.

While biosynthetic fuel derived from plant oil and animal fat was used in our long-term trial in 2011, in the *alcohol-to-jet* process the plant wastes are fermented to produce isobutanol. This is then dehydrated and converted into kerosene using standard refinery processes. There is a wide range of suitable feedstocks. This makes the method as versatile as the *Fischer-Tropsch process* that is already approved, but it requires a much lower initial investment.

A larger proportion of alternative fuels results in a smaller carbon footprint in aviation. Currently the maximum blend of renewable and conventional kerosene is 50% for each engine. This will probably be the case for ATJ kerosene as well, which is another reason why it is important to conduct research into the optimal blend ratio.

→

Improving infrastructure

Improving the potential for emissions reductions with the *Single European Sky* initiative

One climate protection project of central political importance in Europe is the creation of a common European airspace. Current flight routes over Europe, which are dictated by national interests, force aircraft to fly detours averaging 42 kilometers per flight. The *Single European Sky* (SES) would enable the Lufthansa Group alone to reduce its kerosene consumption by about 270,000 tonnes per year. This equates to a quantity of fuel sufficient to fly a Lufthansa Airbus A380 from Frankfurt to San Francisco and back about 1,000 times. Airlines would be able to reduce their CO_2 emissions by 10% and save roughly EUR 5 billion per year.

In an effort to make the Single European Sky a reality by 2020, the EU Commission and the European flight safety authority Eurocontrol launched the Single European Sky ATM Research (SESAR) Program back in 2008. The aim was to standardize European air traffic management with the aid of new technologies, procedures, and standards. At present, the Lufthansa Group is actively involved in more than 50 SESAR projects. Specialists from the various airlines contribute the expertise they have gained in diverse areas ranging from route planning, operations control, and training to information technology and financial management. *Free Route Airspace Maastricht & Karlsruhe* (FRAMaK), for example, which is a SESAR *Flight Trials and Demonstration* project, has resulted since December 2012 in distance reductions on routes in the upper airspace over Germany, the Benelux countries, and parts of the North Sea. This has enabled airlines to realize permanent fuel savings and avoid CO_2 emissions. Since the middle of 2013, 199 shorter

[→ 07]

07
Fuel savings through weight reduction: Successful campaign to weigh all loose objects in a Lufthansa Cargo MD-11F.

direct routes have been available, which are used by an average of 229 Lufthansa flights per day.

Nevertheless, the Single European Sky (SES) is making only slow progress. All the necessary tools, technologies, and procedures have long since been in place, yet the EU member states remain insistent on protecting their own national interests, including their national air traffic control systems and the revenue they generate from fees. The Lufthansa Group and other airlines have repeatedly pointed out such hurdles in the SES legal framework, and they continue to offer their services as constructive partners in the quest for an expeditious solution.

→

Operational measures

The Fuel Efficiency department has developed numerous projects with great potential for savings, projects the airlines in the Lufthansa Group will be implementing in the future. They include programs to achieve permanent weight reductions on board, testing and introducing new flight procedures, optimizing engine performance and aircraft aerodynamics, and developing intelligent software tools.

Potential savings through systematic weighing

In a weighing initiative carried out on an A340-300 wide-body aircraft last year, we identified potential weight savings of about 100 kilograms per long-haul aircraft. Items weighing a total of 70 kilograms have already been permanently removed from the aircraft. This will allow the Lufthansa Group to save more than 1,000 tonnes of kerosene annually on its intercontinental passenger flights. That equates to the fuel consumption of 14 A340-300 flights from Frankfurt to Rio de Janeiro. We will thereby reduce our annual fuel costs in future by more than EUR 900,000 and reduce CO_2 emissions by 3,606 tonnes per year.

Lufthansa Cargo's freighter fleet also will be operating more efficiently in the future. Every single one of the MD11-F aircraft was able to shed 35 kilograms. Experts have already identified potential weight savings of about 70 kilograms per aircraft. The measures are due to be implemented in 2014. Austrian Airlines also has weighed and documented all of the loose parts in an Airbus A320 as part of its *Clear Out* project. The results of the project are being applied to the entire fleet of Austrian Airlines and the Lufthansa Group. This, too, will result in savings in kerosene. The mentioned weighing initiatives make us more acutely aware of the impact of weight on fuel consumption. That has a positive impact on our profitability while also making an important contribution to our efforts to steadily improve our ecological balance. Other weight-reducing measures are also being put in place. They include equipping the entire long-haul fleet with lighter catering trolleys and Lufthansa Cargo's replacement of its freight containers with lighter models. In the middle of May 2014 Lufthansa Cargo successfully completed the replacement of all of its more than 5,500 standard aluminum freight containers with the nearly 14-kilogram lighter versions made from composite materials.

Optimum flight routes and speeds

The Lufthansa Group plans to use a new software application that will save fuel by optimizing the flight profile and speed of aircraft during flight operations. During a flight, the program processes the latest aircraft and weather data to calculate in real time the most economical flight curve for the remainder of the flight. A first prototype went into trial

08
Lufthansa Technik's Project Cyclean 2.0: Clean engines operate with greater thermal efficiency and consume less kerosene.

operation in 2013 and will be tested initially on Lufthansa's long-haul fleet. A similar version of the application, which has been developed by the Berlin-based software producer PACE, is already being used successfully by Lufthansa CityLine.

Engine cleaning to reduce kerosene consumption

Clean engines are more thermally efficient and consume less kerosene. To maintain performance, we regularly clean our aircraft engines to remove contaminants such as dust, pollen, or salt. Under the Cyclean 2.0 program, experts from Lufthansa Technik and the Darmstadt University of Applied Sciences are investigating how the cleaning process can be made even more economical and environmentally friendly. They have come up with a promising idea: Instead of using water, engine washing could be accomplished in the near future by using CO_2 dry ice pellets. This innovative method would also save large quantities of water, and it could be used even in the winter.

A new index helps save costs

The *Strategic Cost Index* is a successful example of a measure designed to increase fuel efficiency. This index indicates the overall costs incurred for each flight taking into account the load, speed, and item costs for crew, MRO, and engines. By using the "new" Strategic Cost Index, flight crews are able to calculate this value on a significantly more precise basis. This is because the calculations now include not only time costs (crew and MRO) but also current fuel costs.

Economic measures

The fourth pillar of the *four-pillar model* aims to bring about systems and measures that operate on the basis of economic incentives. The Lufthansa Group supports the institution of a globally valid, market-based, and competition-neutral system of climate change taxation.

In October 2013 the UN International Civil Aviation Organisation (ICAO) took the decision to develop a globally valid system for climate change levies by 2016. This system is scheduled to enter into force in 2020—an outcome that countries and the industry had been working together to achieve for years. Thus the aviation industry has been a pioneer in the movement towards a global convention on climate change.

Not long after the ICAO decision, however, the European Commission launched yet another competition-distorting solution, planned for the period from 2013 to 2020, with a decision to limit emissions trading for air travel to flights within European airspace until 2016. While this has averted an international conflict for the time being, the EU has thereby locked in place competitive disadvantages for European Airlines. Lufthansa, Air France, and British Airways must continue paying for emissions trading for their intra-European feeder flights, while competitors with hubs outside the EU, such as Istanbul, Doha, Abu Dhabi, and Dubai, are able to transport travelers from Europe without incurring additional costs. The Lufthansa Group's costs for intra-European emissions trading are in the mid-eight-figure range every year.

Should the ICAO fail to propose a solution for a global system by 2016, the EU will once again be expanding emissions trading to all international flights from EU airports. This would once again make international conflicts inevitable, which would not be to the detriment of European airlines alone.

One thing should be clear here: Climate protection is a joint, worldwide responsibility. Only on that basis can an acceptable solution be found, particularly when the share of traffic taking place outside European airspace is growing rapidly.

Besides emissions trading, the national aviation tax, which was introduced in Germany in 2011, continues to be a burden, costing the Lufthansa Group more than EUR 353 million in 2013. This makes the tax nearly one and a half times as much as the net income from operations of Lufthansa and Germanwings combined (EUR 265 million). This is a considerable sum, one that we are not able to invest in modern aircraft or new, environmentally compatible technologies. It is time for policymakers to devise a regime of competitive and fair terms for the industry.

Continuing to optimize processes in the future

In the future, a new flight data analysis tool called OMEGA (Ops Monitor and Efficiency Gap Analyzer), which is currently under development, will enable the Lufthansa Group to analyze current fuel consumption with even greater accuracy and use the results of the analysis to identify further ways in which to optimize processes.

The aim is to establish the use of a software application during flight operations that compares planned, actual, and optimum values during the various phases of flight. OMEGA will enable the airlines to improve the efficiency of future flights using the data thus gathered during flight operations.

Energy and resource management
The Lufthansa Group is investing in Group-wide environmental measures and innovations

The Lufthansa Group is constantly working to increase the efficiency of its use of energy and resources at all levels. Our systematic approach to waste management in catering, our efficient use of resources in building management, and our environmentally friendly ground services at the airports are making important contributions to that end.

Energy and resource management helps us save costs and conserve the environment at the same time. The Lufthansa Group aims to leverage its energy and resource management to realize further potential savings. At the same time, keeping track of industry-specific, regional, and national regulatory regimes for energy, emissions, and waste disposal is a complex task. In 2013 the companies of the Lufthansa Group set themselves numerous new targets and put into practice a large number of measures to conserve resources. This is demonstrated inter alia by the examples below.

→

Lufthansa Technik: 30% less CO_2 by 2018

On March 27, 2013, Lufthansa Technik signed an agreement to further reduce CO_2 emissions. Under the terms of the agreement, the Lufthansa Group's MRO specialist agrees to further lower energy consumption and thereby reduce CO_2 emissions by 30% by 2018. From 2019, the company plans to work together with 14 other Hamburg-based companies to reduce at a minimum a further 150,000 tonnes of CO_2 per year. This will continue and increase the voluntary commitment to 0.5 million tonnes in savings per year that it undertook in 2007. This new, second phase in the company's commitment is becoming considerably more challenging for the locations involved, because numerous measures that are effective in avoiding CO_2 with little use of resources have already been implemented. "This renewed voluntary commitment underscores the relative importance that sustainable management practice has at Lufthansa Technik," according to Ralf Wunderlich, Head of Environmental Management at Lufthansa Technik.

Lufthansa Technik also set its subsidiaries the goal of reducing CO_2 emissions by 30% by 2018. For this reason we are working vigorously to bring to bear across the entire Lufthansa Technik Group the personal knowledge and experience already available to us in this area.

The Lufthansa Group seeks to keep emissions and noise to a minimum on the ground as well. For this reason, we are maintaining a focus on developing and testing electric propulsion technologies for taxiing aircraft. With the use of electrically powered vehicles for aircraft handling and taxiing procedures we can reduce noise and exhaust gases in the immediate vicinity of airports.

[→ 09]

E-PORT AN
Electromobility at Frankfurt Airport

→

E-PORT AN: Into the future with electro-mobility

Frankfurt Airport is Germany's largest commercial airport and one of the most important hubs for air travel in the world. It is also where we are currently working with our project partners to advance the *E-Port AN* electro-mobility initiative. The objective is to use electrically powered vehicles for aircraft handling to reduce emissions generated during ground maneuvering. The Lufthansa Group, Fraport AG, the State of Hesse, and the Rhine-Main Model Electro-mobility Region are partners in the initiative. The future-oriented electro-mobility project is being subsidized by the German Federal Ministry of Transport, Building and Urban Development with scientific support from the Technical University of Darmstadt. On June 10, 2013, it received the "Electro-Mobility Beacon" distinction from the German federal government. This award is reserved for innovations that make a significant contribution to progress in the field of electro-mobility.

The Lufthansa Group's eTaxi, eSchlepper, and TaxiBot projects involve various electro-mobility concepts for future application in vehicles used for aircraft taxiing and towing on the apron at Frankfurt Airport. The long-term goal is that aircraft will no longer taxi to a runway, parking position, or hangar under the power of their engines but with the use of an electrically powered aircraft tower or an electrical propulsion system integrated into the aircraft itself.

eTaxi: Electrically powered landing gear for taxiing
In the eTaxi project we are studying the use and technical integration of an electric motor in the main gear of short- and medium-range aircraft for all taxiing maneuvers on the apron. The system's electrical power is generated and stored by the aircraft's auxiliary power unit.

eSchlepper: A hybrid electrically powered aircraft tug
This sub-project involves a hybrid (diesel/electric) electrically powered aircraft tug without a tow bar. The eSchlepper was developed by Lufthansa LEOS, a subsidiary of Lufthansa Technik, in collaboration with the Swedish company Kalmar Motor AB. Lufthansa LEOS plans to use the eSchleppers for repositioning and towing heavy long-haul aircraft over distances of up to seven kilometers between the gates and hangars (on-base tows). The eSchlepper can move even the largest passenger aircraft with a maximum takeoff weight of 600 tonnes and is unique in its performance class. The first prototype of the vehicle is scheduled for delivery to Lufthansa LEOS at the end of 2014. In the medium term the eSchlepper will be replacing the diesel-powered tow-bar-based aircraft tugs currently in use. The eSchlepper will be more environmentally friendly and economical owing to its innovative electric motor. The all-wheel-drive electric vehicle will be powered by lithium-ion batteries and externally charged from the electricity grid. When necessary, the batteries can be charged during operation with the use of a fully integrated diesel motor.

09
Heading for *green* aircraft handling: In the future, Lufthansa LEOS would like to use an eSchlepper to reposition and tow heavy long-haul aircraft.

10/11
TaxiBot tow truck tested in operation. At the end of March 2014, Lufthansa LEOS received its third TaxiBot vehicle.

TaxiBot: Diesel-electric-powered aircraft tow truck
The TaxiBot subproject, whose focus is a diesel-electric-powered aircraft tow truck, is already at a far advanced stage. It, too, can taxi commercial aircraft to the runway with their engines off (*dispatch towing*). This process is based on a technology patented by Israel Aerospace Industries (IAI) and developed jointly with Lufthansa LEOS. Unlike the eTaxi, this system requires no or only minimal modifications to the aircraft. Once the aircraft has been pushed back from the gate, the TaxiBot driver temporarily turns control of the truck over to the pilot in the cockpit, who then operates the truck remotely in *pilot control mode* (PCM). Once the aircraft reaches the disconnect position, the TaxiBot driver resumes control and separates the tow truck from the aircraft. Only then are the aircraft's engines started. The third TaxiBot vehicle was delivered to Lufthansa LEOS at the end of March 2014. Testing for certification by the German Federal Aviation Office (LBA) and other authorities is currently underway. The testing program will also assess the pilots' workload when starting the engines during the TaxiBot towing.

eLift: Catering lift truck of the future
The aim of the eLift project, as part of the E-PORT AN initiative, is to develop the catering lift truck of the future—one that is electrically powered. The project, which is being managed by Lufthansa subsidiary LSG Sky Chefs, is a collaborative effort with the companies Doll Fahrzeugbau and Euro Engineering along with the Technical University of Kaiserslautern. Various concepts for the electrification of the lift truck's individual components, such as its lifting mechanism and its propulsion system, are being considered. The basis for the new vehicle is an electrically driven truck chassis. The box body is to fulfil the same functions with electric drives as a conventional lift truck. In addition, the use of electric propulsion will result in a substantial and lasting reduction in all types of emissions, particularly noise and CO_2 emissions. The catering lift truck of the future will incorporate a design that separates the truck chassis mechanically and energetically from the box body, the lifting system being powered separately. The vehicle itself will be able to undergo future development independently as a result.

www.e-port-an.com

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LSG Sky Chefs: Avoiding waste and conserving resources

LSG Sky Chefs is the world's largest provider of airline catering and management services for all inflight processes. LSG Sky Chefs has developed a comprehensive system of key performance indicators. These are used to measure and continually optimize the outcome of all measures taken to reduce waste quantities and conserve resources. They include the indicator waste per meal in grams, which the company aims to lower worldwide by another 2% in the next three years. Other indicators are water consumption per meal, energy per square meter of operating surface, energy per meal, and recycled waste as a percentage of total waste.

Ambitious goal: 100% recycling in the USA
LSG Sky Chefs has set itself the goal of having as much of its waste materials recycled as possible and to steadily reduce the quantity of its waste. Since 2008 the Lufthansa Group's catering specialist has been keeping a record of all the waste produced by all of the companies throughout the world that are wholly owned by the Group. The data that are collected in this way provide the basis on which the company calculates the recycling rate for each location, each country, and the entire Group.

LSG Sky Chefs set itself the goal of recycling 100% of its recyclable waste at all 41 of its locations in the USA by 2015. Since the *Zero Waste to Landfill* program began in February 2013, nine locations have introduced the new procedures and were thus able to successfully recycle some 6,500 tonnes of waste.

"To meet our social responsibility, we aim to become the first airline caterer to achieve *zero waste to landfill* in the US," says Dale Easdon, LSG Sky Chefs' Senior Vice President Operations, North America. The company produces 532 million meals a year, 160 million of them in the US.

SIMBA: Environmentally friendly operation of dishwashing lines
LSG Sky Chefs also developed an environmentally friendly method for operating its dishwashing lines, a tool called *SIMBA* (a German acronym that translates to *dishwashing information management tool including operations analysis and alarm system*). Since April 2010 when the pilot project began, we have been able to reduce water consumption in the dishwashing process by 30% and energy consumption by 24% at the Frankfurt base alone. SIMBA is currently in use at 65 LSG Sky Chefs locations worldwide. For its commitment to conserving resources, LSG Sky Chefs received the *Fraport Energy Award* in the *Highest Savings* category in August 2012.

Recycling on board
Limited stowing capacity and short service periods are crucial factors that affect the choice of foods and beverages that are offered on board. They also have a direct effect on waste management. Incorrect sorting of recyclable wastes cannot always be avoided, for example. Nevertheless, we aim to conserve valuable resources and avoid increased disposal costs. For this reason, airline catering is subject to specific sorting criteria. Flight attendants are urged to stow all items in the places from which they took them. While we dispose of open foodstuffs in waste boxes or with clean-up trolleys, empty beverage containers are returned to the beverage trolleys. National disposal rules also play an important role for us (see *Balance* 2013, page 84).

LSG Sky Chefs in Frankfurt gets its own combined heat and power plant
Since October 2013 the Frankfurt location of LSG Sky Chefs has been producing much of the energy it needs on its own. A combined heat and power plant was installed in the basement of the facility. This plant uses natural gas to generate the necessary electricity along with heat and hot water. By producing its own electricity, heat, and hot water, the location is reducing its annual carbon dioxide emissions by roughly 3,000 tonnes, thereby helping to protect the environment and climate. The cost of electricity and gas has risen steadily over the last several years, and, given the volume and production growth that is to be expected at the Frankfurt location, consumption and, ultimately, costs are going to be rising even further. By having its own combined heat and power plant, the company is therefore able to save costs in the long term.

Fly Greener →

Cabin Crew Manager Rebecca Emmerling from Munich is currently promoting the *Fly Greener* initiative in the cabin area. Our aim here is to heighten flight attendants' environmental awareness. Measures include information stands on the theme of recycling and increased coverage in internal media. Planning is also underway for a team of *Fly Greener* ambassadors. Participants will actively communicate the theme of recycling on board.

Lufthansa Systems: Saving electricity intelligently

Lufthansa Systems, the Lufthansa Group's IT subsidiary, is working to steadily optimize its consumption of energy. The IT specialist's largest computing center covers 6,600 square meters in Kelsterbach, a town located on the outskirts of Frankfurt am Main. It contains more than 2,000 servers, which are spread out over four data centers. Because of the huge amount of hot air that is generated, an intelligent air-conditioning solution is a key component of any approach to further reducing the computing center's electricity consumption. 280,000 cubic meters of air are moved every hour in each computing center. Keeping hot and cold airstreams separate from one another is a highly important factor in the energy balance. The server cabinets, which are referred to as *racks*, are positioned relative to one another in such a way that escaping warm air is collected in one aisle while cold air is fed into a parallel aisle. The air streams are thus kept separate from one another, and cold and warm aisles are created. The cold air can be used specifically and without loss to cool the servers. Another component involves harnessing the outside temperature. In the winter especially, the outside air provides 100% of the needed cooling. Thanks to these and other green IT measures, Lufthansa Systems was able to reduce its consumption of electricity by about 5% in 2013 as compared to the previous year.

In 2013 Lufthansa Systems also built an outdoor, fully operational back-up cooling unit in Frankfurt that is connected to the computing center. In addition, an improvement in the coefficient of performance (CoP) value was achieved with a series of other measures, including installation of state-of-the-art heat exchangers in the ventilating stations. This value provides information about the energy efficiency of cooling and ventilation systems. In 2014 the IT specialist aims to achieve further improvement in the CoP by replacing the cooling stations with refrigerating machines.

Lufthansa Cargo: Electro-mobility-based aircraft handling

At the Lufthansa Cargo Center, Lufthansa Cargo's largest base of operations, 40 electrically powered vehicles were replaced by the latest generation of energy efficient models: 31 new electric fork trucks and nine electric tractors. The new industrial trucks consume about 14% less energy for the same power as their predecessors. They operate much more efficiently and can be used for a longer period before their batteries must be recharged. Hence they are responsible for a considerable increase in efficiency at the Frankfurt hub. In total, Lufthansa Cargo has more than 120 of these industrial trucks. With the exception of one that carries especially heavy loads of nine to 12 tonnes, all are electrically powered.

eFreight: Off to a paperless future with Lufthansa Cargo

Lufthansa Cargo has been expanding its international paperless air freight transport services (eFreight) since as early as 2007 with the aim of completely digitalizing the transport chain. Nowadays up to 30 different paper documents are needed for every single air freight shipment, regardless of its size. This imposes high costs every day and prolongs transport times. By converting to eFreight, therefore, the air freight industry will experience a simplification of procedures, a reduction in complexity, and the elimination of an environmental burden. The potential savings for the air freight industry as a whole—7,800 tonnes of paper per year—are considerable. This quantity of paper documents piled one atop the other would be 20 times the height of Mount Everest. Lufthansa Cargo aims to have 100% of its transport documentation handled electronically beginning in 2020.

By using SmartPads for transport order management, Lufthansa Cargo has already made paperless document management a reality. Instead of processing transport orders on paper, this process has been completely electronic since 2013. This saves approximately 7,500 sheets of DIN A4 paper per week. It also reduces the burden on the environment and saves printing costs. Lufthansa Cargo has awarded the company's internal environmental prize to those of its employees who were involved in the project's development.

Resource efficiency in building management

In our efforts to reduce energy consumption while improving the efficiency with which we use resources, we are also setting similar standards for the company's buildings. In its key points, the Lufthansa Group's strategic environmental program requires that the planning, construction, and redevelopment of buildings take account of the latest energy-saving and resource-conserving options that are available.

The Lufthansa Aviation Center (LAC) at Frankfurt Airport was honored by the European Union for its energy efficiency as far back as 2009. The LAC is one of the first buildings in Germany to earn the privilege of calling itself a *Green Building*. Thanks to an innovative structure consisting of thermally-active fair-faced concrete ceilings, a sensitive automated shading system, and a highly insulated façade, it needs only about one-third of the heating energy of a conventional office building. As a result, the heating energy consumed by the LAC is 56% below the guidelines of the German Energy Saving Regulation currently in effect. In the case of electricity consumption it is 17% less. Owing to the building's low-energy design, Lufthansa is able to relieve the Rhine-Main region of about 12,000 tonnes of CO_2 each year. Further examples of sustainable construction for which the Lufthansa Group is responsible include the Lufthansa Training & Conference Center in Seeheim, which is supplied with energy from deep underground by a geothermal energy system, and the new building satellite currently under construction at Munich Airport. This building is designed according to the principles of sustainable construction, which improves its CO_2 balance

by 40% as compared to the two existing terminals.

The planned construction of Lufthansa Cargo's new logistics center at Frankfurt Airport, *LCCneo*, will satisfy the exacting requirements of the Gold Standard of the German Association for Sustainable Construction (*Deutsche Gesellschaft für Nachhaltiges Bauen*). The categories covered by the extensive certification process are ecology, economy, technology, processes, location, and socio-cultural and functional aspects. Thanks to its up-to-date technical infrastructure and automated storage logistics, the new cargo hub will allow faster turnaround times at significantly reduced unit costs while at the same time increasing the quality of service for Lufthansa Cargo customers.

Outlook

To achieve further successful outcomes, the Lufthansa Group launched an internal energy forum in February 2014. The aim is to establish a system for managing electricity and energy conservation that encompasses the Group as a whole. We are therefore exploring the applicability of best-practice examples to the entire Lufthansa Group and working on uniform key performance indicators.

[→ 12]

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View inside the Lufthansa Aviation Center, which has been recognized as a *Green Building* for five years.

Involvement in science
Twenty years of climate research on scheduled flights

Global climate change constitutes one of the greatest challenges that humanity is faced with. Reliable forecasts of future climate trends are therefore of key importance. To improve the climate models needed for such forecasts, constant comparisons between the model and reality are necessary. For the past 20 years the Lufthansa Group has been helping to observe the condition of the Earth's atmosphere.

With more than 300 destinations all around the world, our route network offers ideal opportunities to lend assistance to climate research. Aside from its involvement in climate research, the Lufthansa Group is active in numerous other research projects. These include noise research, the testing of alternative fuels, the development of alternative propulsion technologies for land-based transportation means, and projects to develop technical innovations for use in commercial aircraft maintenance.

In these areas and in our climate research projects we have been able to score significant successes over the past several years. Our contribution to science and research has been especially multifarious in the field of climate research. Our involvement has also made it possible to achieve greater accuracy in weather forecasts and climate predictions and to gather more precise information on the composition of our air quality.

→

MOZAIC: More than 24,000 measuring flights serve to increase the accuracy of climate models

We began our involvement in climate research as far back as 1993. Under the MOZAIC project (Measurement of Ozone, Water Vapor, Carbon Monoxide, and Nitrogen Oxides aboard Airbus In-Service Aircraft), more than 24,000 flights conducted for measuring purposes were completed over a period of 20 years following a one-year development phase for the measuring instruments we helped develop for the project. This enabled us to gather extensive data on the ozone, water vapor, carbon monoxide, and nitrogen content of the atmosphere. On the basis of the data collected aboard two Lufthansa Airbus A340-300 long-haul aircraft, scientists were able to increase the accuracy of climate models and improve weather forecasting models. The measuring flights also allowed us to gather a globally unique data source for water vapor and ozone.

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AMDAR: Further improvement in weather forecasts

Since the end of 1999, Lufthansa aircraft have been equipped with software that gathers current meteorological data in flight. The Lufthansa Group is thus helping to improve the accuracy of weather forecasts. Taking the data measured by aircraft into account can increase the accuracy of weather forecasts for the next 24 hours by 5–7%. *Aircraft Meteorological Data Relay* (AMDAR) is the term used to describe this system for collecting weather data in flight. No additional weather sensors or on-board hardware are needed to record AMDAR data. Since pilots in the cockpit also need information such as barometric altitude, air temperature, and wind speed, aircraft are already equipped with the appropriate measuring devices. The special software, which was developed in collaboration with Lufthansa Systems, is needed only for transmission of the weather data by data link.

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CARIBIC: Important discovery for the protection of the ozone layer

The Lufthansa Group has supported the CARIBIC (Civil Aircraft for the Regular Investigation of the Atmosphere Based on an Instrument Container) project since 2004. The aim of this project is to obtain detailed analyses of the atmosphere in particular regions. For this purpose the *Leverkusen*, a Lufthansa Airbus A340-600, was equipped with a globally unique, 1.5-tonne measuring container, turning the aircraft into a flying climate research laboratory. Ten research institutes in five European countries jointly developed and equipped the automated measuring container under the supervision of the Mainz-based Max Planck Institute for Chemistry. The container is installed once a month for several days and measures data relating to 50 different gases and particulate compounds simultaneously. It has now covered more than two million kilometers in the service of climate research. In addition to the measurements on board, 116 air samples are taken per mission for further analysis in European laboratories. The objective of the project is, among other things, to investigate the processes taking place in the boundary layer between the troposphere and the stratosphere, a layer of the atmosphere that is of particular interest to scientists. Neither satellites nor ground-based equipment can measure climatically relevant parameters in nearly the same quantity or with nearly the same accuracy. Measurements taken with the flying CARIBIC laboratory have recently made an important contribution to proving the presence of three previously undetected chlorofluorocarbons (CFC). One of them, CFC-113a, has been increasing rapidly of late. The next step is to find out where these gases are being produced and what the reasons are for their increase. Only when we have done so will successful countermeasures be possible, as they have been in the case of previously known CFCs, of which there have been only seven so far. They are considered as the main cause of the ozone hole. This is true also of the likewise newly detected CFC replacement, hydro-chloro-fluoro-carbon (HCFC).

→

IAGOS: A new measurement infrastructure for climate research

The climate research project IAGOS (In-service Aircraft for a Global Observing System), in which Lufthansa is likewise a participant, was begun in 2013 as one of three major research projects in the *Roadmap for Research Infrastructures* of the German Federal Ministry of Education and Research (BMBF). As a successor to MOZAIC, IAGOS also uses commercial aircraft as a platform for collecting global and continuous atmospheric data on scheduled flights. The IAGOS measuring equipment is constantly being improved by the participating research institutes so that more, and more precise, data on trace substances in the atmosphere can be collected. According to the scientific panel appointed by the BMBF to oversee the project, this will close an important knowledge gap, resulting in more accurate climate forecasts. The BMBF has given the selected major research projects top priority under its overall research policy.

The first IAGOS system has been in service since July 2011 on the *Viersen*, a Lufthansa Airbus A340-300. Other systems have since been installed on three A340-300 aircraft along with an A330-300 operated by other airlines. After each landing, these data are sent by means of a GSM modem directly to the CNRS research center in Toulouse, where the IAGOS database has its home. From there the data are made available for use by numerous other research institutions around the world in addition to our IAGOS partner. The package of instruments specially developed for the project is robust and requires virtually no maintenance. In addition to the routine capture of atmospheric trace substances, it will be measuring aerosols and cloud particles. ↙

Why are commercial aircraft particularly suited to this? →

Civil aviation is suited to the study and observation of the atmosphere for several reasons:

- → The Earth's atmosphere can be observed by satellites as well as from the ground. Both are remote sensing measurements. However, they have a relatively poor spatial resolution. Direct measurements on board aircraft, on the other hand, provide a much higher spatial resolution. Commercial aircraft, therefore, bridge the gap between observation satellite measurements and ground-based measurements.
- → Aircraft fly at a higher level (tropopause), which is of particular importance for climate research.
- → Aircraft fly worldwide, and so can observe the entirety of the Earth's atmosphere.
- → Scheduled flights provide a high level of continuity and mean that long-term observations can be made that would not be possible with the individual flights made by special research aircraft, which are also much more expensive.

13/14/15
Measuring sensors on Lufthansa aircraft used for climate research in flight.

Product Responsibility

The satisfaction of our customers is a measure of what we do. Safety and service are our top priority. They are the principles that guide our entire value chain.

5	4	7,804	14,000
star service is what we wish to offer our customers	pillars for our customer feedback management	points on the Customer Profile Index	tonnes of CO_2 voluntarily offset by customers through our online offers

Our fundamental focus
safety, health, satisfaction

The companies of the Lufthansa Group continually review and improve their products along the entire service chain. This ranks high in importance for our business success.

- Our goal is to achieve a steady increase in customer satisfaction. We have made our commitment to this goal one of the four cornerstones of our corporate strategy. A key concern for us is that we maintain a strong emphasis on accommodating the diversity of our international customer base. We design our services accordingly—with on-board meal and entertainment choices that are appropriate to specific target groups, assistance for children traveling alone, and assistance for travelers with restricted mobility, to mention just a few examples. In addition, we are constantly improving our feedback management procedures.

- The safety and health of our passengers, crews, and employees are of key importance to us. Swiss, for example, was certified in 2014 as the world's first allergy-friendly airline and is a pioneer in that respect among the Lufthansa Group.

- Large volumes of data are processed every day in the Lufthansa Group. Current social and technical trends are making people all over the world acutely aware of the need for data security. The topic of data protection and data security therefore continues to gain in importance for the Lufthansa Group as well.

- We aim to live up to our responsibility to keep the impact of our flight operations on the environment as low as possible. Many customers share this concern and wish to offset the CO_2 emissions resulting from their air travel. We have developed appropriate options in this respect too as part of our product and service chain.

01/02/03/04/05

Service excellence: For the airlines of the Lufthansa Group, maintaining a focus on the customer is a key concern.

[→ 01]

[→ 02]

[→ 03]

[→ 04]

[→ 05]

Customer satisfaction

Achieving a constant rise in the level of customer satisfaction is one of our key concerns. It is a cornerstone of our corporate strategy. We are therefore continually optimizing the quality of our portfolio of products and services and introducing innovations. And we maintain a focus on personal dialogue with our customers as we do so. In what follows, we wish to introduce Lufthansa's activities in this regard by way of illustration.

Lufthansa is committed to being a *5-STAR airline*. An important aspect of this commitment is how we manage our customer relations. Our goal is to offer the best possible service to each passenger—even when we receive negative feedback. Such feedback can be a source of valuable suggestions as to how we might further improve our service. To us, *5 STAR* means providing what our customers expect of us when it comes to accessibility and rapid problem-solving on a more personal level. The standard we strive to uphold is based on the prestigious Skytrax Airline Rating System.

We regularly conduct online surveys to gauge customer satisfaction. Service variables relating to the entire passenger experience and service chain are measured. They range from preflight information and booking procedures through the actual flight experience and such aspects as waiting times for luggage to the completion of the journey at the destination.

To measure customer satisfaction, we use satisfaction scales that show which services our customers are especially satisfied with or, as the case may be, less satisfied with. In addition, Lufthansa collects data on the level of customer satisfaction with the Miles & More services and our direct sale services, such as those offered at our service centers and our booking portal at *LH.com*. We issue comprehensive, user-specific reports on a monthly basis for and to departments responsible for delivering these services. Management is also regularly informed of the status quo of customer satisfaction.

Our passengers' reviews are consolidated in the *Customer Profile Index* (CPI), which provides a weighted average assessment of our services from our passengers' standpoint. The CPI rose from 7,733 in 2012 to 7,804 in 2013. This improvement is reflected also in the numerous prestigious awards that Lufthansa and numerous other Group companies received in 2013 (see "Prizes and Awards" on page 129).

We aim not only to measure customer satisfaction but also to continually improve it. Many areas are assigned passenger satisfaction targets. Satisfaction figures are used also to identify weak spots in our past performance and as basis for initiating measures to rectify them.

A key success factor for the Lufthansa Group is the manner in which the Group organizes its management of customer feedback and applies it in dialogue with passengers. What customers report back to us provides a crucial starting point from which to work towards

Lufthansa is committed to being a *5-STAR airline*.

an increase in customer satisfaction, which has a substantial effect on the Lufthansa Group's image. Lufthansa receives on average 200,000 valuable feedback messages from customers per year through every sort of channel.

→

Best in class dialogue for and with our passengers

In 2013 the Lufthansa Group launched the *Passenger Dialogue Services* program. It is based on four cornerstones:

→ **Accessibility:**
Lufthansa is committed to enabling passengers to reach us from wherever it is convenient for them to do so, regardless of which channels they use to contact us. For this reason Lufthansa installed a *Feedback button* right on the homepage at *LH.com*, for example, while also providing an e-mail address and a telephone number for those who prefer to call us directly. In addition to these feedback options, passengers can contact us even while in flight through Lufthansa's *Flynet* product. Our experts have not forgotten the social media channels either. Lufthansa's Facebook presence gives the customer direct access to our feedback form, and we are represented in dialogue in other relevant forums as well.

→ **Speed:**
Particularly in these days of Web 2.0, speed is crucial to our success in customer relationship management. Short response times are highly important, particularly when there are short-term increases in the volume of customer feedback owing to strikes, airspace closures, or the effects of winter weather.

→ **Problem-solving:**
Our paramount goal is to understand each passenger's feedback and to deal with it in as personal a way as possible without adversely affecting the factor of speed.

→ **Learning from feedback:**
With the *Passenger Feedback Cycle*, feedback is clustered and analyzed as a potential source of improvements to our products and services.

This program has given our feedback management system a new fundamental focus with the goal of being *best in class*. ↙

Key measures in our efforts to achieve a continual rise in the level of customer satisfaction →

- → More personal attention in the services we provide.
- → Upgrading the quality of our service and hospitality.
- → Greater differentiation of check-in areas according to booking class at the major hubs in Frankfurt and Munich.
- → Optimization of the services provided to assist arriving passengers and passengers in transit in Frankfurt and Munich.
- → Improving the amenity kits (toiletry bags with convenience items) in First and Business Class.
- → Upgrading the inflight entertainment program in all classes.
- → Providing more sophisticated meal and beverage options in the business lounges.
- → Offering a *fast lane* for status customers and First Class and Business Class passengers at all intercontinental destinations.
- → A new option on long-haul Lufthansa flights: A new product, a *Premium Economy* service class, will become available in December 2014, initially on all flights aboard the new Boeing 747-8. This new product will close the gap between our high-end Business Class segment and the traditional Economy Class. All long-haul Lufthansa aircraft will be furnished with the new class by the summer of 2015.

Flight safety and health protection are the Lufthansa Group's highest priority

For the Lufthansa Group, the safety and health of passengers, crew members, and employees always come first. It is the duty of the management and all employees of the Lufthansa Group to monitor flight safety risks and achieve a constant rise in the level of safety.

For the sake of flight safety, all airlines of the Lufthansa Group have safety management systems (SMS) that follow the requirements of the International Civil Aviation Organization (ICAO). The purpose of these systems is to determine the safety level of flight operations, detect and measure risks in advance, and lower the risk of accidents through suitable countermeasures. Lufthansa has developed for this purpose new and accredited processes for systematic risk analysis and assessment. In addition, Lufthansa heads a consortium of various university professors and research institutions whose goal is to develop meaningful parameters for measuring flight safety. Such *safety performance indicators* enable us to control accident risk more effectively. But Lufthansa is setting standards in matters of safety with traditional measures too, such as its heavy investments in aircraft equipment and a pilot training program without equal in the industry.

Within the Lufthansa Group, independent departments monitor compliance with flight rules and procedures. In addition, the experts make safety recommendations and advise the airline on all matters of relevance to flight safety. The Group Safety Pilot department coordinates the cooperative efforts in safety matters among the companies of the Lufthansa Group.

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The IOSA audit—a comprehensive standard for aviation safety

An independent review of the safety standards of the airlines in the Lufthansa Group takes place every two years with the IATA Operational Safety Audit (IOSA). The IOSA is internationally the most widely-accepted standard for aviation safety. All airlines in the Lufthansa Group fully satisfy the IATA safety standards. Lufthansa Cargo was the first IOSA-registered cargo airline in the world. With its first successful completion of an intensive audit in 2007, the Lufthansa Group's cargo specialist has been a trailblazer for flight safety standards as they apply to cargo airlines.

In 2014 Lufthansa also became the first airline in the Lufthansa Group to be audited according to the new *Enhanced IOSA Standard*, which becomes mandatory in September 2015.

www.iata.org/iosa

Medical health services further expanded

The Lufthansa Group has seen a further increase in the importance of medical health services for its passengers. Demographic trends have played a role in this development, as people are living longer and therefore remaining mobile longer. The increasing need for clarification of medical issues presented by passengers and the growing demand for medical transports led to the establishment of the *Passenger Medical Care* division in 2009 as an addition to the Lufthansa Group's Medical Service. Requests for transport services specifically for sitting or recumbent passengers with limited mobility, for example, or even for intensive-care transports with the Lufthansa Patient Transportation Compartment (PTC), are becoming ever more frequent. And then there are the medical emergencies that occur on board. The central advisory unit is the *Medical Operation Center* (MOC). It coordinates all transports of medical patients aboard the Lufthansa fleet. Since July 2010 the MOC has also been managing, with its *Special Service Team*, the procedures for accommodating passengers with limited mobility according to legal requirements and operational necessities.

With its PTC, Lufthansa is the only airline in the world to offer a flying intensive-care unit that provides patients with return transport and all-around medical care. In addition to the MOC, Lufthansa Technik also plays an important role. As the technical specialist in the Lufthansa Group, it is able to quickly convert seating in an aircraft when necessary to allow installation of the PTC. During flight, intensive-care patients receive medical care from a physician and a specially trained *PTC Medical Crew Member*.

In April 2014 Lufthansa Technik, together with its partner company Aerolite Max Bucher AG, presented for the first time a complete model of a newly developed unit for transporting patients in passenger and VIP planes. The system has a modular structure and can be adapted to personal requirements. The first deliveries of the system are scheduled for as early as September 2014.

Lufthansa is also constantly expanding its bonus program *Doctor on board*, which it developed in 2006. Under this program, previously registered physicians make themselves available on board for immediate medical assistance in the event of a medical emergency. When physicians register for the program, information about their medical specializations is stored with their frequent flyer miles information under the Miles & More program so that flight attendants are able to approach them directly, discreetly, and without making an onboard announcement in a medical emergency situation. Lufthansa further expanded the *Doctor on board* program in July 2013. Since then, a special website on our homepage provides information on the program for doctors who wish to register.

Swiss—The first *allergy-friendly* airline

In May 2014, to improve the travel experience for passengers with allergies, Swiss introduced anti-allergenic products on the ground and in the air. Adjustments were made to the cabin, and lactose- and gluten-free products were added to the foods and beverages already on the menu. This earned Swiss certification by ECARF (European Centre for Allergy Research Foundation) as the world's first *allergy-friendly* airline, putting Swiss in the role of trailblazer for the Lufthansa Group.

"Our customers' need for an anti-allergenic travel environment has increased steadily in past years. In cooperation with the foundation ECARF we would now like to take concrete steps to address this need so that we can make traveling as pleasant and painless as possible," explained Frank Maier, Head of Products & Services at Swiss.

A measuring kit for analyzing cabin air in flight

Lufthansa is the world leader in cabin air quality research, to which it has a particularly strong commitment. This work is taking place in cooperation with unions, staff representatives, trade associations, industrial federations, and aircraft and engine manufacturers. It also includes developing technical solutions in the form of special sensors and filters.

One special feature is the measuring kit that we have been using since April 2013 to analyze cabin air. A partner in its development is the reputable Hanover Medical School. Altogether, a minimum of 50 tours with the Airbus A380 are planned for tests. Using the measuring kit on selected flights, Lufthansa will attempt to record changes in the composition of the cabin air during a smell event. Preliminary results have indicated no noticeable chemical pollution, even during smell events. Neurotoxic ortho-tricresyl phosphates (o-TCP), in particular, were not detectable. "All in all, only a small concentration of organophosphates was detectable," summarize the researchers. Lufthansa wants to identify and quantify substances that are potentially present in the cabin air and to optimize the objective assessment of such events.

Data protection and data security

Careful and secure handling of personal data is the basis for trust in a business relationship. Protecting data protects the Lufthansa Group's customers, employees, shareholders, and suppliers from violation of their personality rights through improper use of their personal data. The Lufthansa Group protects and secures data according to the highest standards.

The Corporate Data Protection department ensures that the German Data Protection Act (*Bundesdatenschutzgesetz*, BDSG) is applied across the Lufthansa Group. It acquaints our employees with the relevant provisions of the law and conducts data protection audits. In addition, the Group's data protection experts advise the departments when new systems are introduced or procedures are designed or altered. This makes it possible to coordinate data protection and economic concerns early on. The crucial first step is to make employees and managers sensitive to the risks to data protection so that they are able to detect and avoid them.

For a service company such as the Lufthansa Group, the protection of personal data also has special economic importance. Such information is invaluable to the companies in their efforts to deliver the best quality of services possible. The more personal the options or services are, the more important knowledge of the preferences of individual customers becomes.

In recent years a particularly troublesome area of legal conflict has developed over the use of personal data as foreign authorities have come to demand, with ever greater frequency, information on passengers as contained in their passports or flight reservations. As a German company, Deutsche Lufthansa AG is subject to German data protection law. Nevertheless, the airlines must also observe rules of entry and security provisions in the various destination countries. Lufthansa always attempts to avoid such data disclosures for as long as possible. This problem can be definitively resolved only at the political level through workable international agreements that are compatible with data protection law.

Mandatory guidelines ensure data protection

The Data Protection Guidelines establish the framework for data protection in the Lufthansa Group. They are based on laws such as the BDSG and accepted principles of data protection. The Guidelines spell out the duties of compliance with data protection law. They also set forth rules intended to ensure conduct in conformity with data protection law throughout the Group, to make risks to data protection transparent, and to safeguard against such risks. Data protection is the responsibility of the Executive Board and the management of various companies. They are assisted in the discharge of this responsibility by the Corporate Data Protection department under the direction of Dr. Barbara Kirchberg-Lennartz.

In 2013, as in 2012, the Lufthansa Group recorded no significant risks to or sanctionable violations of personal data protection. As a rule, we were able to respond quickly to data disclosure requests and customer feedback. When necessary, we instituted changes in procedures or behavior.

Training in the protection of data

One of the main issues on which the Group's data protection experts gave advice in the reporting year was the use of customer data for sales purposes in compliance with data protection requirements. Training courses and measures to disseminate information on data protection for employees and managers will be further stepped up in 2014. They are an essential requirement for detecting and managing risks to data protection. The Web-based training course (WBT) *The fundamentals of data protection* is mandatory for much of our workforce.

Data protection audits

The experts in Corporate Data Protection also conduct their own audits of selected procedures and systems used to process personal data. As a rule, the reliability, security, and regularity of the audit projects are checked.

06/07

The Lufthansa Group protects and secures data according to the highest standards.

CO_2 compensation

The Lufthansa Group goes to great lengths to avoid and reduce emissions. To ensure that we use the necessary kerosene as efficiently as possible and realize sustainable savings in its consumption, we invest in the most advanced aircraft and introduce innovative processes, procedures, and technologies. But as long as air travel continues to depend on the use of kerosene, a fossil energy source, CO_2 emissions cannot be avoided entirely. For this reason, the Lufthansa Group airlines Lufthansa, Swiss, and Austrian Airlines, along with AirPlus, one of the largest providers of management solutions for business travel, offer all customers programs that enable them to voluntarily offset the unavoidable emissions their flights produce.

Here is an example of a project that we have supported with the aid of our environmentally conscious customers →

Solar lamps in rural Ethiopia
Photovoltaic cells on rooftops give families access to electricity and light. For people living in rural regions of Ethiopia, this constitutes a substantial improvement in living conditions. Replacing petroleum lamps with solar-powered lighting also has a positive effect on their health while at the same time reducing greenhouse gas emissions.

After booking a flight, any passenger can use an emissions calculator to calculate his/her actual CO_2 emissions for the route to be flown and offset them accordingly. The personal CO_2 compensation option we offer our customers is part of our 2020 environmental strategy and the aviation industry's four-pillar climate protection strategy (cf. page 54). In 2013 passengers of Lufthansa Group airlines made contributions to offset more than 14,000 tonnes of CO_2 resulting from air travel. This is the equivalent of about 320 flights from Frankfurt to New York with a Lufthansa Airbus A330-300 and an increase of 18.5% as compared to the previous year.

The airlines Lufthansa and Swiss work closely with the well-known Swiss non-profit organization myclimate (www.myclimate.org) to offer the opportunity to make voluntary donations to climate protection. myclimate is obligated to contribute at least 80% of the CO_2 compensation money paid in by customers to climate protection projects that meet the highest

standards. In addition to reducing greenhouse gases, the projects have been shown to contribute to sustainable development. The climate protection projects offered are registered with the *Gold Standard*. This independently maintained label is a mark of distinction for qualitatively superior climate protection projects and the emissions reduction certificates resulting from them. The emphasis is on the integrity of these projects in terms of their environmental balance and social compatibility. Our cooperating partner myclimate issues to private persons from Germany and Switzerland tax-approved receipts for their donations to offset CO_2 emissions. Passengers are therefore able to deduct their CO_2 compensation donations from their taxable income.

Austrian Airlines is cooperating with Climate Austria on CO_2 compensation (www.climateaustria.at). When a customer books a flight online, a CO_2 calculator calculates the flight's CO_2 emissions. Climate Austria collects the donations and uses them to support high-quality Austrian and international climate protection projects. Climate Austria always selects projects according to rigorous standards. These projects promote energy efficiency and renewable energies such as hydro-, biomass, wind, or solar energy.

Climate-neutral business travel with AirPlus

AirPlus is a company of the Lufthansa Group and an international provider of payment and billing solutions for business travel. AirPlus now offers three *green* product solutions:

- *Carbon Offset* (since 2009)
- *Green Reports* (since 2011)
- *AirPlus Green Company Account* (since 2014 also in Germany)

AirPlus Carbon Offset enables companies to automatically settle and offset the emissions generated by business travel through their AirPlus customer accounts.

AirPlus Green Reports gives customers clearly structured and detailed analyses of the CO_2 emissions generated by their business travel. These analyses are based on four internationally accepted methods of calculating CO_2 emissions, among them the reporting standard established by the German Association of Travel Management for business travel. They can be imported into the customer's own emissions accounts.

CO_2 compensation for private and business customers

The *AirPlus Green Company Account* developed by AirPlus in 2012 is the world's first completely CO_2-neutral central bill account. Available on the German market since early 2014, this product enables companies to organize their business travel even more sustainably. In addition, the *AirPlus Green Company Account* dispenses with cumbersome paper-based processes involving extensive forms or invoices. Customers are therefore able to save CO_2 emissions even while making travel arrangements. AirPlus compensates for any unavoidable CO_2 emissions resulting from its internal processes and the use of the *Green Company Account* by supporting a reforestation project in Nicaragua managed by myclimate. This project is improving the basic living conditions of the local population, protecting the local flora and fauna, and helping to counteract the effects of climate change over the long term. By using the *AirPlus Green Company Account*, our business customers take responsibility for the climate and contribute directly to its protection.

AirPlus also sets great store by its collaboration with the prestigious climate protection foundation myclimate.

Lufthansa, Swiss, and Austrian Airlines calculate CO_2 emissions for individual accounts on the basis of real flight events. Kerosene consumption is calculated per flight passenger from gate to gate, taking into account meteorological conditions (such as winds), taxiing procedures on the ground, and holding patterns and detours in the air. An emissions calculator operated by myclimate or Climate Austria can allocate accordingly the CO_2 emissions resulting on average from the flight in question. Since the seating class (Economy, Business, First) can be selected in advance, the emissions can be weighted according to the amount of space required for a seat.

http://lufthansa.myclimate.org
http://swiss.myclimate.org
www.climateaustria.at
www.airplus.com

→ Social Responsibility

→ Our dedicated and qualified employees are always at the service of our customers. Being an attractive and responsible employer is key to ensuring that this remains the case.

14.5	15	151	136
percent of managers are female	years of cross-company mentoring	nationalities are represented in the Lufthansa Group worldwide	million euros spent on internal educational measures

A new personnel strategy for the Lufthansa Group
On course with *Forward with HR*

The Lufthansa Group's productivity and ability to innovate depend in large measure on making optimal use of highly qualified employees. Also of central importance are motivation and passion, because only enthusiastic employees can generate enthusiasm among our customers.

Social change exposes companies to formidable challenges. Demographic trends are already exacerbating a shortage of skilled workers and managers. We are grappling with this problem as much as we are with technological change and social trends, including digitalization, globalization, and the diversification of models for balancing hours on and off the job. Our personnel management staff is responding to these challenges as the times demand. Hence we consider work-life integration, home office options, and flexible workspace models when formulating our strategies. We expect that future generations will clearly articulate their expectations to their employers.

→

Ensuring lasting competitiveness

We want to preserve and further consolidate our competitiveness in the future as well. To do so we developed our corporate program SCORE in 2012. One of the consequences of SCORE is around 3,500 job cuts, which are taking place with the full involvement of the Lufthansa Group's various personnel departments. These cuts are mainly being made through voluntary measures and they are always compatible with social policy. In this regard, SCORE had a significant impact in 2013 on the work of our HR managers.

We position ourselves as an attractive, modern, and responsible employer for which our employees work with passion and enthusiasm.

But also required are a forward-looking approach to personnel management and efforts to increase our attractiveness as an employer. Our aim is to stay ahead of the general trends so that we remain able to attract the right talent to the Lufthansa Group over the long term. To that end we are continually improving our personnel management. The new personnel strategy we are implementing now was formulated in 2013 for this reason. The following statement of how the Lufthansa Group would like to position itself in the future serves as the basis for the fundamentally new direction being taken in the strategic areas for action:
We—the Lufthansa Group—position ourselves as an attractive, modern, and responsible employer for which our employees work with passion and enthusiasm.

In our pursuit of value-oriented corporate management, our employees are of central importance. The Lufthansa Group is known for its outstanding services and is already considered a highly attractive employer among the workforce. For years now, the Lufthansa Group has emerged as one of the favorite employers in various rankings by employees. In the *Trendence Graduate Barometer* 2014, for instance, university graduates with degrees in economics put the aviation company in fourth place in the top employer rankings. The Lufthansa Group also placed among Germany's top 10 employers in the *Universum Student Survey* 2014, just as it had done in 2013.

Key areas for action in personnel matters

We wish to work to preserve and strengthen our stature as an employer particularly in light of demographic trends. Our Personnel department's future goals are therefore based on and consistent with the Group's corporate strategy:

Lufthansa Group goals

- Increase the company's value.
- Expand the leading market position of our airlines and service companies by actively shaping the aviation industry.
- Continuously increase customer satisfaction.
- Conduct economically, ecologically, and socially balanced and sustainable business.

Personnel department goals

- Increase the organization's productivity.
- Preserve and strengthen our attractiveness as an employer.
- Increase employee commitment.
- Promote sustainable social responsibility.

The Lufthansa Group is unwavering in its pursuit of these goals. To realize them, the Personnel department has developed the strategic program *Forward with HR*. This program gives concrete expression to the four goals derived from the Group's corporate strategy and defines the measures that will point the way for the next several years:

- Increase the organization's productivity: Focusing on further enhancing the Lufthansa Group's productivity with the means of HR management.
- Preserve and strengthen our attractiveness as an employer: Ensuring attractive yet competitive terms of employment and pay.
- Increase employee commitment: Encouraging employee commitment by giving employees an active voice in the direction of the Lufthansa Group.
- Promote sustainable social responsibility: Fulfilling our internal and external social responsibilities and further developing them to lasting effect.

We have already set in motion comprehensive measures to create the conditions for innovative personnel work. As the first step in their implementation, the Personnel department has set its focus on capturing synergies, standardizing processes, and developing managers and the management culture. Effective as of financial year 2014, the Executive Board also approved a comprehensive reorientation of the instruments of benefits management and variable compensation. We are convinced that this will further improve team performance in the Lufthansa Group.

The five principles of our new management culture

A mainstay of our position as an attractive employer is a modern, feedback-oriented management style that inspires enthusiasm and loyalty towards the Lufthansa Group among its employees and enables them to achieve their best. Moreover, the ability of management to cope with impending processes of change is becoming ever more important. The future will see an even greater need for managers to think and act entrepreneurially. This involves a willingness to make courageous decisions, seize opportunities, and strike out on new paths, all with the firm support of employees. The Lufthansa Group's management guidelines consist of our five *Leadership Principles:*

1. **Driving Business**
   I shall do all I can for our lasting success.
2. **Leading Change**
   I shall take a proactive approach to my area of responsibilities.
3. **Creating Spirit**
   For me it is the human element that makes all the difference.
4. **Fostering Talent**
   I shall help each employee develop his or her full potential.
5. **Mastering Complexity**
   I shall be at once courageous and careful in my decisions and actions.

These five *Leadership Principles* will guide the future actions of our managers. Their influence will also be felt in numerous personnel processes, such as those associated with compensation or the search for employees and their selection and development.

The Lufthansa Group began to base its personal performance assessments on these principles in 2014. This has shifted the emphasis to aspects that allow finer distinctions to be made. We do not judge performance merely by the results; rather, we take a broader view that takes into account the path leading to those results. Part of the process is to give precise feedback in which performance differences are clearly identified. At the same time, we allow our managers greater discretionary leeway to give monetary rewards for individual performance. The key instrument for assessing individual performance is the corporate management grading system newly redesigned under the name PROFILE (potential and performance assessment of management personnel).

Interview
with Dr. Dorothee Warnke

Director of Corporate HR Strategy and Organizational Development, Deutsche Lufthansa AG

Dr. Dorothee Warnke

→ The Lufthansa Group has introduced a new personnel strategy. What further steps are planned?
The Lufthansa Group's personnel strategy aims to consolidate our position as an attractive, modern, and responsible employer for which our employees are inspired to work with passion and enthusiasm. And we have devised certain key measures that are designed to achieve that aim. My colleagues in Human Resources are working with the departments at full steam to implement these. The focus here is as much on improving our management culture as it is on developing social activities. The objective is implementation as quickly as possible so that our present and future employees will experience us as the ideal employer and continue to do so for as long as possible. Only in this way can the Personnel department provide optimal support for the strategic corporate goals.

To ensure that it continues to do so in the future, we will maintain our practice of continuously analyzing the internal and external environments for relevant influences and developments and readjust our personnel planning, processes, and instruments as needed. It is important to us that we design efficient, effective, and economical structures that enjoy a high level of acceptance among employees and are at the same time highly beneficial for the departments.

→ Why do you want to improve the Lufthansa Group's management culture, and how do you propose to do so?
The Lufthansa Group is undergoing a sweeping process of transformation aimed at ensuring the company's future viability. This process will succeed only if all of us remain prepared for and open to fundamental changes and continually pursue these. Action is required from management staff especially: They need to initiate changes, question the status quo, make innovative but also difficult decisions, and inspire employees for a common cause. With the *Cultural & Leadership Transition* project we are supporting the company and our executives in this process through various Group-wide measures. With the *Executive Board in Dialogue* format, for example, we have initiated a company-wide series of events in which the Group's Executive Board responds directly to all questions posed by management staff and employees in a kind of road show. Our newly developed management principles, which fully inform all relevant personnel processes, are the core element in all of the change initiatives. Even if the necessary cultural transformation takes time in a large company, the new *Leadership Principles* offer all management staff clear practical guidance.

→ Last year you set up COMPASS, a program for the professional reorientation of employees. Has it been successful?
COMPASS helps employees and managers to successfully reorient themselves professionally. We are working closely with well-known, internationally active personnel consulting firms. The program is designed for those employees whose jobs are at risk as well as for employees and management staff who are interested in a new professional challenge.

COMPASS offers consultation in a protected space. Employees may, for example, avail themselves of up to five separate hours of professional consultation at no charge without having to reveal their identity. With their superior's approval they can then book, if needed, a semiannual consultation package, also free of charge. Approximately 700 employees are currently taking advantage of the consultation offer. We have already successfully placed more than 160 applicants. ↙

Diversity and equality of opportunity
Differences are as valuable as what we have in common

A culture based on diversity and equality of opportunity enhances our ability to innovate and adapt to market forces, a crucial factor in our ability to remain competitive. Diversity within a company also fosters creativity and makes our corporate culture more receptive to different values, outlooks, and life experiences. We regard this as the basis of our modern service culture and the responsiveness to customers that goes with it.

The Lufthansa Group's employees come from literally all over the world. They hail from very different cultures and ethnic groups, belong to a range of age groups, and bring to their jobs an enormous variety of skills and outlooks. Such abundant diversity in human resources is crucial to our ability to ensure the long-term endurance of our strong competitive position. We regard this very diversity as a source of great opportunities for our company.

The Lufthansa Group has been committed to systematic diversity management for many years. It aims to achieve a form of understanding that respects differences and encourages results in a spirit of mutual respect. Our management approach is subject to continual development in response to conditions in an ever-changing environment.

Furthermore, we have instituted programs designed to improve career opportunities for women, programs that also make it easier, for men and women alike, to reconcile career demands with family life. In this regard, our Personnel departments are working with our equality-of-opportunity representatives to develop concepts and measures.

01
Flight crews of the Lufthansa Group's airlines.

Part-time employment
Lufthansa Group, in percent
● Female employees ● Male employees ● Total

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Female employees	40.3	41.1	42.6	43.8	42.7	42.7	43.9	44.2	45.3	45.6
Total	24.6	24.6	25.7	26.8	26.5	26.9	26.9	27.1	27.9	28.1
Male employees	13.9	13.0	13.7	14.3	14.0	14.0	13.6	13.3	13.7	14.1

Average age[2]
Lufthansa Group, in percent
● Female employees ● Male employees ● Total

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Male employees	40.6	41.1	41.3	41.4	41.5	41.5	41.8	41.9	42.4	42.7
Total	39.6	40.1	40.2	40.3	40.4	40.3	40.7	40.8	41.3	41.9
Female employees	38.3	38.8	38.9	39.0	39.1	39.0	39.5	39.6	40.2	40.9

Part-time work by Group companies
2013, in percent

Age structure at the Lufthansa Group[2]
2013, in percent

Share of women in management positions[1]
Lufthansa Group, in percent

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
13.3	12.7	12.9	15.0	14.6	14.7	13.1	13.6	13.6	14.5

Share of women with staff responsibility[1]
Lufthansa Group, in percent

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
32.0	32.5	34.7	35.8	38.0	41.5	36.8	35.5	34.5	34.1

1 Scope of consolidation without LSG outside Germany, SWISS Aviation Training, Edelweiss Air AG, SWISS European Airlines, SWISS Aviation Software, Traviaustria, LH Malta Holding Ltd., LH Malta Aircraft Leasing Ltd., Shannon Aerospace Ltd., LH Technik Malta Ltd., LH Technik Airmotive Ireland Ltd., LH Technik Budapest Repülögeb, Hawker Pacific Aerospace Inc. (US), LH Technik Landing Gear Services UK Ltd., BizJet Int. Sales & Support Inc., LH Technik North America Holding Corp., LH Systems Americas Inc., AirPlus Air Travel Card Vertriebsges. mbH, LH Flight Training Berlin GmbH, AirPlus International Ltd., AirPlus International S.r.l., AirPlus Payment Management Co. Ltd., AirPlus International AG, AirPlus International Inc., LH Malta Finance Ltd., LH Technik Component Services LLC.

2 Scope of consolidation partially without LSG outside Germany, Lufthansa Malta Holding Ltd., Lufthansa Malta Aircraft Leasing Ltd., Lufthansa Technik Philippines Inc., Shannon Aerospace Ltd., Lufthansa Technik Malta Ltd., Lufthansa Technik Airmotive Ltd., Lufthansa Technik Budapest Repülögeb, Hawker Pacific Aerospace Inc. (US), BizJet International Sales & Support Inc., AirLiance Materials LLC, Lufthansa Technik North America Holding Corp., Lufthansa Malta Finance Ltd., Lufthansa Technik Landing Gear Services UK Ltd. (formerly Hawker Pacific Aerospace Ltd., UK).

Women in management positions

At almost 45%, the Lufthansa Group as a whole currently has a high proportion of female employees. Indeed, the workforce is dominated by women in service areas. We would like to further increase the ratio of women to men in technical areas. The Lufthansa Group has also set itself the goal of increasing the percentage of women among its managers by 30% by 2020 as compared to 2010. In the reporting year, this figure was 14.5% for the entire Lufthansa Group worldwide (PY: 13.6%), 16.7% in Germany (PY: 15.5%).

In addition, we aim to increase the representation of women in the cockpit. This stood at 5.4% in the reporting year (PY: 5.3%). Female pilots have been a familiar sight at Lufthansa for 25 years now. At the end of 2013 we employed 8,973 pilots, 486 of whom were female pilots and more than 100 of whom were female flight captains.

The Lufthansa Group occupies fourth place in the *Women on Board* index

The *Women on Board index* is compiled annually by the *Frauen in die Aufsichtsräte* ("Women on Supervisory Boards") initiative. It provides information on the proportion of women on the executive and supervisory boards of a total of 160 German companies, including the DAX 30 companies. The Lufthansa Group occupies fourth place in the current study (as of January 14, 2014). Two of the five members making up the Executive Board team are women (40%). Women accounted for 30% of the Supervisory Board in the reporting year. Indeed, with the appointment of Monika Ribar to the Supervisory Board, that figure has stood at 35% since May 2014.

15 years of cross-company mentoring

Mentoring is an established method the Lufthansa Group uses to promote equality of opportunity for women and men as part of its personnel development program. In September 2013, the cross-mentoring program we initiated back in 1998 entered its 15th generation. The target group is women with serious career ambitions who are beginning a management career. They receive guidance for one year by a male or female mentor from one of the other companies. In confidential conversations with their mentors, the mentees consider questions and approaches relating to career matters, the demands of balancing career and family, and positioning themselves within the company. In this exchange the candidate benefits from the experience and network of her mentor. But the latter may also question his/her own management role and gain access to the mentee's company. What makes cross-company mentoring special is the network of female talent and experienced managers across company boundaries. This enables both to look beyond familiar territory into another corporate culture and observe its rules of the game. Currently the Group is running the program in cooperation with Axel Springer, Robert Bosch, Commerzbank, Deutsche Bank, Fraport, Hewlett-Packard, Merck, and Sanofi Deutschland. At present the Lufthansa Group is participating with 10 mentees and as many mentors in this double exchange of perspectives.

02
Dr. Bettina Volkens, Chief Officer Corporate Human Resources and Legal Affairs of the Lufthansa Group, was a speaker in 2013 in the event series *Women for Technology*, hosted by Lufthansa Technik AG in Hamburg.

03/04/05

Work-life integration: With the *Luftikusse* ("The happy-go-lucky ones") program and the *Lufthansa Family Conference*, the Lufthansa Group aims to further promote the compatibility of career and family life.

06

LH New Workspace: The office of the future in the Lufthansa Aviation Center.

Further increasing the compatibility of career and family life

The Lufthansa Group has been assisting its employees for many years with customized options for the care of their children. These include a choice of flexible work-time and workspace models along with childcare spots and emergency or vacation childcare spots in external institutions. Our goal is to further develop our childcare infrastructure with a focus on providing our employees with maximum compatibility between the demands of career and family during the various phases of family life. With our in-house vacation childcare program *Die Luftikusse—Kinder erobern die Lufthansa Welt* ("The happy-go-lucky ones: Children conquer the Lufthansa world"), the Lufthansa Group took another step in financial year 2013 towards better work-life integration during summer vacations. In response to the vigorous demand for such services, there will be a varied vacation program for our employees' children at the Frankfurt location during the 2014 summer vacation.

During the reporting year we gave a great deal of thought to the question of where our employees might need even more help in balancing the demands of career and family. For this purpose we established the *Lufthansa Family Conference* dialogue format. The ideas workshop took place in early March 2014 in our Training & Conference Center in Seeheim. At the invitation of Dr. Bettina Volkens, the Lufthansa Group's Chief Officer for Corporate Human Resources and Legal Affairs, roughly 70 employees from all areas of the Lufthansa Group discussed questions, ideas, and concerns relating to the topic of childcare. Participants in the family conference specified which of the company's options were useful, which should be expanded or improved, and what new options should be offered. We derived courses of action from the insights gained at the conference. One idea, a parents' network, was championed by the association Lufthansa employees established in February.

The number of fathers who want a more active role in family-related work is growing—including among our own employees. We therefore further developed our cooperation with *Väter gGmbH*, and we offer fathers an opportunity to take part in various events centered around the subject of fatherhood and work-life integration. With the exception of a contribution from participants towards the costs of a father-child weekend, the Lufthansa Group assumes the costs for all events in which employees wish to take part.

Our employees are not left on their own even when it comes to providing care for other family members. Under the *Elder Care* program they receive help from the external service provider *pme Familienservice*, which since 1992 has provided employees with childcare assistance as well.

LH New Workspace— Innovative forms of administrative work are designed to improve work-life integration

Work-life integration, home office options, and flexible workspace models are topics that modern personnel management must deal with. We are responding to these challenges by, among other things, introducing the innovative programs described along with new work-time models. A parallel change is taking place in infrastructure requirements, e.g. in offices. For this reason we conducted tests from October 2013 to April 2014, as part of our *LH New Workspace* pilot project, to get an idea of what the workspace of the future might look like in administrative departments. Two large work areas in the Lufthansa Aviation Center (LAC) at Frankfurt Airport were completely redesigned for the test run. Employees from various departments subjected the new design to a practical test. With the working world becoming increasingly mobile, the focus has shifted to the problem of how to permit greater flexibility. Some 60 standard workspaces and various work modules, such as small conference rooms, video conferencing capabilities, think tanks, etc., were provided for the 90 employees involved in the test run, as we wanted to encourage for purposes of the project both activity-oriented work and the use of home office days.

Encouraging cultural dialogue

Meeting and working with people of very different cultural backgrounds is a daily experience in the Lufthansa Group. It is a source of fascination for employees and lends the Lufthansa brand its international flair. Direct communication conveys knowledge of the cultural backgrounds of colleagues and customers. At our major hub in Frankfurt, for example, there is constant cultural dialogue relating to information on current occasions or events associated with religious festivals, traditions, or exhibitions. And let us not forget the flight crews. In the *Kulturraum* ("Cultural Space") continuing education events for pursers and flight attendants which are held over a period of several days, intercultural knowledge is amplified with service-specific aspects and understanding of specific national features is fostered.

At a glance

Of our 118,214 employees,
→ 44.6% are women.

They represent
→ 34.1% of all employees with responsibility for other staff,
→ 14.5% of all managers,
→ and 5.4% of all pilots.

→ 151 nationalities are represented in the Lufthansa Group worldwide.

The average age is
→ 41.9 years.

The percentage of employees in Germany with disabilities is
→ 4.1%.

As per December 31, 2013

Employment policy based on partnership
Creating viable conditions for the future

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 company with the expectations and needs of its employees.

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 growing plurality of opinions and opinion leaderships, much like developments in society as a whole, is increasingly a challenge for all parties concerned. The guiding principles for joint efforts are flexibility and responsiveness.

→

Partnership in collective agreements

Lufthansa 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). The goal is to treat all employee groups within the company fairly and justly—a desideratum that the multiplicity of unions within the company presents with an array of increasingly challenging conditions.

Pay negotiations with ver.di for ground staff
On May 1, 2013, the air traffic employers' association Arbeitgeberverband Luftverkehr e.V. (AGVL) and the trade union ver.di agreed in the fourth round of negotiations on a wage settlement for the roughly 33,000 workers whom the Lufthansa Group employs in Germany as ground staff. This agreement is the first to make distinctions among the various business segments based on differences in their economic performance. The wage agreement is valid for a period of 26 months, from February 1, 2013, to March 31, 2015. The introduction of differentiated wage scale increases in combination with long terms for collective wage agreements marks an important change of course for future wage policy. Since the pay increases also do not go into effect until later, beginning in February 2013 the employees made a contribution, with the delay of several months in their wage increases, to the Lufthansa Group's measures to safeguard profitability. In return, the Lufthansa Group promised the employees job security until 2015. The agreement was preceded by several widespread warning strikes in Germany.

LSG Sky Chefs: Structural reform for the German regional companies
A structural reform was negotiated in February 2013 between ver.di, the AGVL, and LSG Sky Chefs for the employees of the German regional companies of LSG Sky Chefs. In this agreement, cost reductions were defined for existing employees, while adjusted pay terms were defined for new hires. At the same time, a promise of long-term job security was made. Owing to this solution, it was agreed that the companies included in this structural reform would not fully participate in the 2013 round of Group-wide collective bargaining.

New agreement for Germanwings cabin staff
Germanwings and the representatives of the flight attendants' union UFO reached agreement in June 2013 in the wage negotiations for cabin personnel.

For Lufthansa cabin crews, an agreement was made in the reporting year to implement the mediated settlement with the UFO from 2012. A noteworthy feature is the collective agreement on annual working hours, which improves the ability of the company in Germany to cover seasonal demand and thereby lighten peak workload demands on cabin crew members while the summer flight schedule is in effect. For the transition from the decentralized services of Lufthansa to

Germanwings, furthermore, solutions that are compatible with social policy were found for the employees.

Negotiations with cockpit staff
The negotiations for collective bargaining agreements with cockpit personnel employed by Lufthansa German Airlines, Germanwings, and Lufthansa Cargo have resumed with intensity. The discussions proved difficult because of the complexity of the issues and the wide disparity of positions. The dispute came to a head with the three-day strike by cockpit personnel in April 2014. Lufthansa and the union Vereinigung Cockpit subsequently reached a constructive agreement on the next steps towards resolving the issues of pay and carry-over benefits. Since then the negotiations have continued.

Swiss was engaged in trilateral negotiations with the cockpit unions Aeropers and IPG for an amalgamation of the two cockpit corps. The talks were brought to a successful conclusion. The agreement submitted to the union members for a vote was rejected in early 2014 by the long-haul pilots (Aeropers), who were being asked at the same time to increase their productivity. Negotiations are ongoing for collective bargaining agreements with cabin and ground personnel.

Austrian Airlines significantly overhauled its collective bargaining agreement in 2013 and adapted it to future requirements. An agreement was reached with unions and employees on the largest package of reforms for ground crews to date. It contains radical changes in salary ranges, entry-level wages, pay increases, company pensions, anniversary bonuses, and severance pay. In exchange, employees will have a share in future profits. The employees approved the new provision with an overwhelming majority of roughly 75%.

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 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. Lufthansa defines these agreements in cooperation with internal labor committees and employees. The company is a party to collective wage bargaining with employees in 24 countries. In all countries where Lufthansa acts unilaterally, the company uses benchmarks and macroeconomic data such as inflation figures to review salaries at least once a year on the basis of market and competitiveness criteria. In countries with very high rates of inflation, this assessment is performed more often, given the circumstances, and usually leads to pay increases. 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, Lufthansa has documented its support for freedom of association and the right to collective bargaining for all of its employees worldwide. Employees in any country where Lufthansa companies are active are free to lawfully organize themselves and become involved in defining their working conditions (see page 27).

Lufthansa Group: Distribution of employees

Employees as of December 31, 2013

	2013	2012	Change
Group employees	**118,214**	**116,957**	**+1.1%**
of which Passenger Airline Group	54,702	55,236	−1.0%
of which Logistics	4,589	4,606	−0.4%
of which MRO	19,917	20,282	−1.8%
of which IT Services	2,718	2,766	−1.7%
of which Catering	32,307	30,088	+7.4%
of which Service & Finance	3,981	3,979	+0.1%

Lufthansa Group: Jobs throughout the world in 2013

Employees as of December 31, 2013

Lufthansa Group: Employees by group and gender

Employees as of December 31, 2013, in percent

● Female employees ● Male employees

1 Without apprentices.
2 Consists of cockpit and cabin.

Retirement benefits are to be provided on a more sustainable basis

Providing employees and managers with retirement benefits ranks high in importance for the Lufthansa Group. And we have every intention of keeping it that way. The Lufthansa Group is cognizant of its responsibility for managers, employees, and the company and seeks to ensure that financing for company retirement benefits for present and future employees remains secure for the long term. The goal is to offer a modern system of benefits that has more flexibility and is based on developments in the capital markets.

When Lufthansa's company pension scheme was introduced in 1994, the employer pension contributions accrued interest at a rate of 6–7%. In today's interest rate environment, however, such yields are expected to remain unachievable for the foreseeable future. This means that the costs of providing benefits are significantly higher for the Lufthansa Group today than the two sides to the negotiations jointly assumed when the model was implemented in 1994. Moreover, the underlying economic and demographic conditions have

07

Tag cloud showing 3,790 open comments. The font sizes represent the frequency with which the words were used. (Example of employee feedback in Germany.)

changed as well. The Group therefore gave notice in September 2013 that it was terminating the collective agreements governing Lufthansa's company pension scheme so that it could work with the unions to convert its retirement benefits to a more sustainable model. Existing entitlements to retirement benefits are guaranteed and remain unaffected.

Managing change in a socially responsible way

The Lufthansa Group takes responsibility for its employees even in times when major changes are afoot. The COMPASS program launched by the Group in January 2013 is an expression of this long-term personnel policy. It helps employees and managers successfully reposition themselves professionally. For this purpose, Deutsche Lufthansa AG works closely with prominent, internationally active personnel consulting firms. COMPASS is designed not only for employees and managers whose jobs are at risk, but also for those looking for a new career challenge. This may be a desire either for a change within the Group or for employment outside the company.

The COMPASS program comprises mainly the following package of services: a confidential initial interview, comprehensive career change advice, and a company-related job market based on current contacts in the Lufthansa Group and available exclusively to program participants. To date, more than 7,000 employees have consulted the job listings. Two out of three applications submitted through the job listings have led to invitations to a job interview from a partner company.

Contact with the COMPASS office is voluntary and is treated confidentially. Employees and managers wishing to avail themselves of the program incur no costs. The placement service is offered for up to six months and comprises, in addition to the personal and professional location-matching assessment, an analysis of the applicant's strengths and opportunities. Furthermore, the experts identify the available options and assist COMPASS participants through all phases of the application process.

The COMPASS program is making an important contribution to our efforts to make the adjustments necessary under our current program for the future compatible with social policy.

Employee satisfaction

With its Employee Feedback Management (EFM) program, the Lufthansa Group has created an efficient process designed to maintain a continual dialogue between managers and employees company-wide. In 2013, under the mottos *Your voice counts* and *Take part*, the Group conducted its ninth worldwide EFM employee survey at Lufthansa German Airlines and in the Group functions. More than 36,000 employees were called upon to take part in the survey, which contained questions concerning employee commitment, their identification with the company, and aspects of employee satisfaction. While the total participation rate of 51% was nine percentage points lower than in 2012 (60%), it did reflect a relatively high level of participation, especially for a survey conducted in economically difficult times. The decline may be attributable also to the fact that, for the first time, the only way to submit responses was online. Paper questionnaires were no longer available, which made participation more difficult for certain categories of employees lacking a fixed workplace with a network connection.

Employee Feedback Management (EFM) allows us to give greater consideration to employees' opinions in our corporate management.

Employee Feedback Management (EFM) allows us to give greater consideration to employees' opinions in our corporate management. The 2013 EFM was conducted as a brief interview for the purpose of enhancing the sustainability of the measures derived from the 2012 EFM and bringing transparency to their implementation. The company uses the EFM survey to measure, in particular, levels of employee attachment to the company, employee satisfaction, and employee commitment. The results reflect challenges that are being driven by the changes currently taking place. Attachment to the company improved by 2 percentage points in the reporting year, while satisfaction reached the same level as in the previous year.

The written comments received from 3,790 of the employees surveyed have provided the management with an additional source of valuable information and suggestions.

A special plus point for the EFM in the reporting year: For every questionnaire that was filled in, the company is donating one euro to the charitable aid initiative *help alliance*, which is supported by employees of the Lufthansa Group (see page 106).

The Group assigned the analysis of the survey to an external institute. The results for 2013 are available as 1,430 individual reports. In the interests of maintaining an open and constructive dialogue and making improvements, employees and their superiors also met for talks to review the results. Employee surveys are conducted in the other divisions of the Lufthansa Group as well, not just at Lufthansa German Airlines or in the administrative offices. Using the standardized Employee Commitment Index (ECI), an internal benchmark can be established Group-wide. The ECI is employer-independent and calculated on the basis of four questions which must be a constituent part of every employee survey. Encouraged by the positive response to the employee feedback, the Lufthansa Group also plans to implement a uniform survey process across all business segments in the coming years. "We have received word from nearly 90% of EFM participants that they are familiar with the EFM results for 2012 and have even been discussing them with their managers. Nearly half of those surveyed also reported that there had been an improvement as a result of the EFM," says Lars Ottmer, Vice President for Personnel Development at Lufthansa German Airlines.

The EFM results are naturally of relevance to the Executive Board as well. "The Executive Board has discussed them in depth, and we have agreed to seek further improvement in 2014 in the following three areas where action is needed: communication, attachment, and leadership," comments Dr. Bettina Volkens, the Lufthansa Group's Chief Officer for Corporate Human Resources and Legal Affairs.

While discussions do not automatically translate into change, it is evident that concrete action towards change is most likely to succeed when employees are involved. That is precisely what the EFM is all about, and what makes the survey sustainable.

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Employee Feedback Management: In 2013 the Lufthansa Group once again used attractive posters to encourage participation in the employee survey.

[→ 08]
Employee Feedback Management
EFM
Take part.
Let's shape the future for our company!
Take part in our annual employee survey from
August 26th until October 6th, 2013.
ONLINE ONLY
Every vote –
1€ to
www.help-alliance.com
HelpAlliance
Mitarbeiter engagieren sich
Lufthansa
lufthansa.com

09
Training and continuing education traditionally have high priority at the Lufthansa Group.

[→ 09]

Training and continuing education
Employees make the crucial difference

The Lufthansa Group is one of Germany's most fascinating and multifaceted employers. We are convinced that our investments in training and continuing education for our employees and managers will pay off handsomely. Our company stands for open communication, attractive working conditions, and ideal opportunities for further development. The more qualified an individual is, the greater his or her contribution towards enhancing the innovativeness and competitiveness of the Lufthansa Group.

In 2013 we once again invested heavily in training and continuing education. This was an acknowledgment of our role as a socially responsible employer. In the reporting year we offered 65 different job entry possibilities for students with an interest in working for the Lufthansa Group. In addition, the Lufthansa Group once again offered traditional training in 36 occupational subject areas. 62 trainees began a dual course of studies with the help of the Lufthansa Group. In addition to the traditional training courses, the aviation company also offers entry-level positions in flight crews. In 2013 we qualified 313 new employees for cabin crew work. In addition, we hired 29 new pilot trainees, 6.8% of whom were women. Student pilots will be "ready for takeoff" again in 2015 as they begin their training at our flight training academy in Bremen. A joint training platform for flight operators in the Lufthansa Group was launched as early as 2012. The goal is to harmonize training standards and approaches for cockpit and cabin crew among the Group's companies, for example by having flight operators in the Lufthansa Group develop future training programs jointly and exchange training personnel among themselves.

→

Identifying talents—fostering potentials

The Lufthansa Group is constantly on the lookout for highly qualified recruitment prospects and maintains close ties with universities and other institutions of higher learning. For this reason, the Group regularly visits training and job fairs and presents a broad portfolio of opportunities for entry into employment with the Group. For example, Lufthansa Technik was represented in the reporting year with an information stand at the *Women in Technology* career fair for the purpose of getting more women interested in the wide variety of career options offered by the Lufthansa Group's maintenance specialist.

In addition, the Lufthansa Group has a variety of programs designed to attract talented prospects with academic degrees to the company. The *ProTeam General Management* trainee program, for example, allows university graduates to form a comprehensive picture of their professional prospects in the Lufthansa Group over the course of a two-year program that includes, among other things, project assignments in Germany and abroad. In 2013 we filled this trainee program for the first time Group-wide. In addition, Swiss has offered the one-year trainee program *Swiss Experience* since 2013. This program is designed for BA graduates specializing in avionics and aviation.

The English-language trainee program *International Airline Professional* (IAP) is intended specifically for international applicants who are trained for later deployment in their home countries. In this custom-designed program, young persons of talent become acquainted over the course of 18 months with a broad range of departments in the company at various locations. The IAP program is currently undergoing revision and therefore will not be offered next year.

We once again enabled participants in the *st.i.p* (study and intensive practice) program to combine their studies with structured internships in the Lufthansa Group. The Lufthansa Group received 10,700 applications in all for the various trainee programs.

In addition to the trainee programs already mentioned, individual companies in the Lufthansa Group have other, likewise extremely successful programs that are specific to particular business segments. On May 21, 2014, for example, Lufthansa Cargo's *StartCargo* trainee program became the first in the Group to receive a prestigious stamp of approval from

the *Absolventa* job portal. It is the first and only stamp of its kind and is the mark of a career-promoting and fair trainee program.

Keen interest: 120,000 applications in 2013

The Lufthansa Group received in all more than 120,000 applications in response to its job advertisements. This shows that interest in the Lufthansa Group as an employer remains high. In 2002 Lufthansa launched the online career portal www.Be-Lufthansa.com, which has since been used by the majority of job applicants for their first contact with the Lufthansa Group. The Group-wide portal offers an overview of the broad variety of positions within the aviation company. What our various occupational groups have in common is a fascination with both flight and the possibilities for connecting countries, cultures, ideas, people, and sources of trade.

Those interested can also find information on career prospects through Facebook, Twitter, YouTube, and, since December 2012, our new career blog, *Be Lufthansa*. In the career blog, interns, trainees, students, and employees from different occupational categories report on their work environments. We know from the numerous dialogues on our Facebook portal that the content and information we provide are highly valued. And we regard Facebook, with our now more than 45,000 fans, as a *dialog box* for our career portal www.Be-Lufthansa.com where we also offer a career orientation game providing an exciting and innovative means by which to find the right position within the company. The goal is to explore one's own strengths by playing a game and to find suitable training options within the Group. Use of the game is free of charge and anonymous. The *Web Excellence Forum*, in its *Career Fanpage Monitor 2013* study, ranked our career fan page on Facebook first among all DAX 30 companies in the category of dialogue quality.

Lufthansa School of Business: Germany's first corporate university

With the Lufthansa School of Business (LHSB), the Lufthansa Group is operating Germany's first corporate university. The focus of the LHSB and the programs it offers are aligned with the Lufthansa Group strategy. As instructed by the Executive Board, the LHSB actively assists in the further cultural development of the company through various networking and dialogue platforms for employees and managers. In addition, the LHSB offers all employees a large variety of target group-compatible and hierarchy-transcending seminar options and management programs. And ever greater use is being made of blended learning concepts (face-to-face events combined with e-learning). The training institution cooperates with selected international organizations, business schools, and academic institutions. It has received multiple awards for the worldwide standards it has set for the development and training of professionals and managers. In 2013 the internal business volume for continuing education and development programs in the Lufthansa Group amounted to EUR 136 million, 6 percentage points below the previous year's figure. Nevertheless, the number of participant days increased slightly to 771,000.

[→ 10]

10
The Lufthansa Group is an attractive employer and offers a broad range of training opportunities.

The Training & Conference Center in Seeheim celebrates its 40th anniversary

The Lufthansa Training & Conference Center in Seeheim is our seminar and conference center. Managers, employees, and politicians have been assembling here, in a facility equipped with a first-class infrastructure, since 1973. For employees of the Lufthansa Group, Seeheim has been an important point of reference from time immemorial. The Lufthansa world meets here regularly for management conclaves and training sessions. Even managers and employees from other companies, in the region and beyond, continue their education in Seeheim. The Lufthansa Training & Conference Center is also an important regional employer. Some 270 employees from 15 countries take care of the services and see to it that everything runs smoothly, including more than 20 career entrants who have found in Seeheim a trainee position with Lufthansa for a career as, for example, a hotel manager or cook. Careers are promoted in Seeheim. In 2012, for example, Christina Merz was awarded the distinction of being the world's best young chef by the *Concours International des Jeunes Chefs Rôtisseurs* 2012.

Top placements in employer rankings →

The most recent employer rankings have confirmed the powerful attractiveness of the Lufthansa Group as an employer in Germany. In the *Trendence Graduate Barometer 2014*, for instance, university graduates with degrees in economics put the aviation company in fourth place in the top employer rankings. This reflects an improvement by five places in comparison to its ranking for 2013. Among engineering graduates the company is in ninth place in the 2014 rankings (PY: 11th place). The Lufthansa Group likewise placed among Germany's top 10 employers in the *Universum Student Survey 2014*, just as it had done in 2013.

"We are pleased to make the acquaintance of talented and motivated young people and to work with them to further develop their potential. Investing in training and further educating people is a perfectly natural thing for us to do. We gladly assume responsibility for it."

Dr. Bettina Volkens
Chief Officer Corporate Human Resources and Legal Affairs
Deutsche Lufthansa AG

Lufthansa Flight Training: Success in the market for training and continuing education of flight crews

Lufthansa Flight Training GmbH (LFT) has been operating since 1997 as an independent provider of training and continuing education for flight crews within the Lufthansa Group. Today its list of clients includes, in addition to the flight operators in the Lufthansa Group, more than 200 other airlines from all over the world. LFT's portfolio of services includes basic training for pilots and flight attendants, simulator training, emergency and service training, and a broad spectrum of e-learning products. With a total of 40 cockpit simulators in Frankfurt, Berlin, Essen, Munich, and Vienna and flight schools in Bremen, Rostock, and Phoenix, Arizona, the company is one of the largest European training academies for pilots and flight attendants. The Lufthansa Group plans to concentrate its manpower in the flight training segment. By July 2015, Lufthansa Flight Training GmbH and Swiss Aviation Training AG (SAT) are to be merged into one company as equal partners. ↙

Employee safety and health protection

The healthier and more motivated our employees are, the better they are able to perform. Safe working conditions that are conducive to health and well-being are, therefore, an integral element of the Lufthansa Group's job safety and health protection programs. As the business activities of the individual Group companies vary significantly, the requirements for job safety and health management vary as well. So it is only logical that these call for fundamentally decentralized organization.

The Medical Service, with its physicians specializing in occupational, aviation, and tropical medicine, takes care of all health-related concerns that Lufthansa Group employees might have. This department works in close contact with Group Employee Safety, Lufthansa's Social Counseling Service, and the health experts at the various Group companies. The Health working group has established itself as a forum for regular interdepartmental exchange; it meets four times a year. In order to fulfill even more effectively the steadily increasing legal requirements for health care, the Medical Service sought and received certification in 2012 to DIN EN ISO 9001. The certification applies to the locations in Frankfurt, Munich, Hamburg, and Cologne and covers the following areas: occupational, aviation, and tropical medicine; the Aero Medical Center; administrative control; Passenger Medical Care; and the Social Counseling Service. With the goal of securing and further improving upon the standards already achieved in quality management (QM), the Medical Service trains internal QM commissioners. In addition, the Medical Service assumes responsibility for the medical supervision and quality management of all medical transports, including those that require the use of Lufthansa's globally unique flying intensive-care unit, the Patient Transportation Compartment (PTC) (cf. page 75).

Social Counseling

The Lufthansa Social Counseling Service has served the Group's employees as a central contact point for private, financial, and family-related problems and workplace conflicts since 1985.

This is offered as a voluntary social service by the Lufthansa Group and serves an important function in fulfilling the company's duty to provide for the welfare of its employees for purposes of employee safety and health protection. The Social Counseling Service is provided at numerous locations in Germany, including Frankfurt, Munich, Cologne, Nuremberg, Hanover, Berlin, Düsseldorf,

and Stuttgart. Its portfolio of services comprises five areas:

- Individual psychosocial counseling
- Coaching and counseling of managers and officeholders
- Training, workshops, and informational events
- Team counseling and conflict moderation
- Prevention and corporate health management

The Social Counseling Service publishes an annual activity report. In addition, it works actively for the Lufthansa Group's various health campaigns.

In 2013, numerous campaigns to promote employee health took place again at Lufthansa's German locations. The Social Counseling Service conducted a total of 164 seminars, workshops, training courses, and informational events. The overall score in the customer satisfaction survey stood at 1.86 in the reporting year. The range of topics included:

- Resilience—Building strengths (during times of change); How do I strengthen my mental resistance during periods of mounting stress?
- Healthy management practices
- Team and conflict management
- Introduction of the mental health guidelines
- Substance abuse in the workplace
- Dealing with stressors in the daily routine of a flight attendant

Participation again in Germany's national "Alcohol? Less is better!" campaign week
Under the slogan "Alcohol? Less is better!" the nationwide week-long campaign launched by the association *Deutsche Hauptstelle für Suchtfragen* ("German Center for Addiction Issues") took place this year from May 25 to June 2, 2013. Our company was once again a participant.

The Lufthansa Group's Social Counseling Service conducted informational events and events relating to addiction prevention all across Germany with the support of the Group's Medical Service and some health insurance funds. On the topic of *Residual alcohol as a risk factor* in particular, visitors were presented with findings that were often new and surprising to them.

Effective management of employee safety

The Group Employee Safety department works closely with physicians, social counselors, employee representatives, and responsible staff in the companies of the Lufthansa Group. Its goal is to ensure and enhance the long-term health and employability of all employees, in particular by regularly identifying and evaluating hazards in the workplace and implementing measures to achieve a lasting reduction in the number of work-related accidents and illnesses. In addition, the department's experts work to identify risk factors for work-related illnesses early on and ward them off. Their responsibilities also include counseling to promote health, training in safety matters, instructing employees in the noise laboratory, and developing and updating health-related information on the company's intranet.

Networked health management: Passenger Medical Care

The services provided by the Passenger Medical Care department expand our work in the area of health management. Among other things, Passenger Medical Care works together with the Medical Operation Center and our network of panel physicians to care for acutely ill crew members. This involves coordinating ground processes, medical transports, and flight operations and making use of the Medical Service's expertise as well as continually dealing with on-board medical emergencies in the background. In this way we ensure that the medical safety of both passengers and crew members meets the highest international quality requirements.

Numerous health management activities

In 2013 we once again initiated numerous health campaigns at our various company locations. For example, Lufthansa's Flight Attendants' Health Management service, in cooperation with the Volkshochschule Frankfurt, planned an educational leave program on the topic of *Staying healthy on the job and in daily life*. The focus of this program was a holistic approach to health, and it helped the participants identify and take advantage of the options and resources available to them in their efforts to remain healthy, resilient, and productive. At the instigation of the Medical Service in Hamburg, Lufthansa Technik has been participating in the University of Hamburg's long-term, multicenter scientific study on metabolic syndrome, a complex of symptoms consisting of high blood pressure, obesity, and high blood fat, all of which are particularly significant as risk factors for secondary illnesses such as heart disease or strokes. The 10-year study has been conducted in phases or legs in the Medical Service. The last leg took place between November 2013 and January 2014 and again had an excellent response, with over 1,500 subjects taking part in the study. Lufthansa's Hamburg base, meanwhile, held its annual Health Day in cooperation with the Medical Service and with the support of the health insurance fund Techniker Krankenkasse. The extensive informational services on offer for Lufthansa employees ranged from a cardiovascular check-up and relaxation coaching to nutritional counseling. The Lufthansa Group's Social Counseling Service also was present with a market stall.

Photo shoot of musicians from the Gürzenich Orchestra Cologne in a Lufthansa hangar

→ Corporate Citizenship

→ Corporate citizenship is one of the ways in which we express such values as responsibility, fairness, team spirit, precision, and excellence in performance. These values are fundamental to our core business as well.

30	80	40	15,000
years of Lufthansa's Festival of Baroque Music in London	tonnes of relief supplies flown to the Philippines	*help alliance* projects providing "help for self-help"	visitors per year to the Crane Information Center

Aktion
Deutschland Hilft

[→ 01]

Lufthansa Cargo

[→ 02]

MD-11 Freighter
THE JOHANNITER

[→ 03]

Humanitarian emergency aid

The Lufthansa Group has a long history of organizing aid flights to regions experiencing humanitarian disasters quickly and professionally. Our main role is to provide the logistical support for getting emergency aid to victims, and our aid flights provide quick assistance without bureaucratic delays.

→

There is no alternative to the use of aircraft to transport supplies quickly and safely.

01/02/03

Together with the emergency relief alliance *Aktion Deutschland Hilft*, Lufthansa Cargo transported roughly 60 tonnes of relief supplies to the Philippines.

Special flights are usually organized in close cooperation with the German government and reputable aid organizations. Over the past several years we have invested steadily in humanitarian emergency aid.

Lufthansa Cargo is part of a professional network of logistics companies and reputable German aid organizations. In February 2013 this freight specialist signed an agreement with the emergency relief alliance *Aktion Deutschland Hilft* and its partner *World Vision Deutschland*. This agreement gives relief organizations direct access to Lufthansa Cargo's logistics capabilities for missions outside of Germany. It also promises to deliver ad hoc aid even faster and more professionally.

Lufthansa and Lufthansa Cargo fly more than 80 tonnes of relief supplies to the Philippines

Just days after typhoon Haiyan wreaked devastation on the Philippines, the Lufthansa Group was already delivering emergency aid. On November 10, 2013, we flew relief supplies to Manila in a wide-body Airbus A340-600. These included 5,400 fleece blankets, 3,000 large plastic tarpaulins and tents, and medical equipment. On the initiative of a Lufthansa pilot who had flown the empty aircraft to the Philippines for maintenance, a decision was quickly made to seize the opportunity to use it for this life-saving mission. What followed was an unparalleled action by Lufthansa German Airlines, Lufthansa Cargo, and Lufthansa Technik in cooperation with two other organizations, *World Vision e.V.* and *International Search and Rescue Germany* (I.S.A.R.). The Joint Reporting and Incident Center at the German Federal Office of Civil Protection and Disaster Assistance coordinated the offers of assistance. Those involved in the effort assembled the 25-tonne aid package at the Frankfurt hub in less than 36 hours.

Lufthansa Cargo began another relief flight bound for the Philippines on November 22, 2013. Working with the relief alliance Aktion Deutschland, Lufthansa Cargo, in cooperation with other companies in the Lufthansa Group, once again delivered aid quickly, and without the usual red tape, to a population hard hit by the typhoon. On board the freight aircraft were some 60 tonnes of relief supplies, including urgently needed food packages, medical equipment, water treatment units, and tents. We also set up an account with our employee organization *help alliance* for donations. The EUR 120,000 in donations that was raised was doubled to EUR 240,000 by the Lufthansa Group's Executive Board. This money is going mainly towards rebuilding destroyed villages in the Philippines. ↙

Social commitment

The companies of the Lufthansa Group and their employees are not limiting their humanitarian commitment to emergency aid. A range of initiatives founded by Group employees supports numerous long-term aid projects.

→ help alliance

help alliance: "Help for self-help"

The *help alliance*, established in 1999 by employees from all segments of the Lufthansa Group, is currently supporting some 40 long-term aid projects worldwide. The members of this aid initiative work on these projects on a voluntary basis, are politically and denominationally independent, and collect donations for use in meaningful ways in social aid projects all over the world. Their humanitarian activities are focused on nutritional and health programs, schools and educational institutions, orphanages, and street children projects in Africa, Asia, and South America. In all of its projects, the *help alliance* pursues the objective of helping victims help themselves, thereby enabling them to improve their living conditions by their own efforts. Cooperation with experienced partners and regular visits by project managers to the project sites ensure that the projects maintain a high standard of quality. The *help alliance* also provides disaster relief. The Lufthansa Group provides the organization with financial, logistical, and communication support. The *help alliance* publishes detailed information on its activities and the progress of its various projects in its Annual Report and on its website.

Swimming, cycling, and running for a good cause

What the two Lufthansa A320 pilots Sebastian Bartel and Lars Heurich accomplished during the reporting year went far beyond a race for water in Gambia. Independently of one another, the two came up with the idea of taking part in the Ironman and Ultraman competitions in Hawaii for the benefit of a *help alliance* aid project. For each one of the more than 700 kilometers covered in the competitions, EUR 50 could be donated on www.betterplace.org, the *help alliance's* online fundraising partner. In this way the two extreme athletes succeeded in raising more than EUR 40,000 for a water project in Gambia. Managed by the *Sabab Lou Foundation*, a *help alliance* partner, the project aims not only to provide a source of clean drinking water by means of solar pump and irrigation systems, but also to help the inhabitants of (to date) three villages in Gambia achieve greater economic self-sufficiency. Greater harvests thanks to the availability of water mean more income for the people—the calculation

seems simple enough. A Lufthansa employee in Stuttgart has invested heavily of herself in ensuring that it works out in practice as well. Ultraman Lars Heurich, whose most fervent wish from the outset was to be on hand to see the water supply system operate for the first time, was able to confirm first-hand that it does.

A new brand presence for the anniversary year

To mark its 15th anniversary, the *help alliance* is rejuvenating itself with a new public image. This includes, in addition to a new website and a new logo—both designed by the agency meerdesguten Brand Identity—an improved system for online donations on the website, and it aims above all to bring the various actors closer together. The new presence is designed to reflect the unique level of commitment demonstrated by Lufthansa Group employees and their solidarity with the people they seek to help. At the same time, it makes clear that the *help alliance* is not a closed initiative within the Lufthansa Group.

www.helpalliance.org

The first non-airline company to partner with the *help alliance*

Following a trip to Vietnam and a visit to the *help alliance* project *Saigon Children's Charity*, the franchise company Lufthansa City Center Reisebüros decided to integrate the *help alliance* as a partner into its own corporate responsibility strategy. As a first step, the company assumed the costs of printing 1.3 million donation bags for on-board collections, a portion of which were retained for use in its own travel agencies. This year one of the travel agencies affiliated with the chain and located in Schwalbach near Frankfurt will be making the *help alliance* one of the beneficiaries of its *Sports against Poverty* campaign. Other campaigns are being planned.

04
Sebastian Bartel (left) ran the Ironman in Hawaii to benefit the water project in Gambia. Lars Heurich then followed up at the Ultraman.

05
Mariama Diba and Edith Lanfer (*help alliance*) are delighted as the water supply system successfully begins operation.

Small change—it's a big help →

To give Lufthansa Group passengers the opportunity to help build a bridge to 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. This allows passengers to donate coins and banknotes in any currency they may happen to be returning with on long-haul flights. Small sealable collection bags are provided for this purpose in the seat pockets aboard the aircraft. These are collected by flight attendants and turned over to the *help alliance*. Valuable leftover cash can also be deposited in the donation pillars located in airport employee areas, the Lufthansa Lounges at all German and selected international airports, and in the public areas of the Frankfurt and Munich hubs. Following Condor and Brussels Airlines, Austrian Airlines joined the on-board collection program on July 1, 2012. Since March 15, 2013, all Germanwings aircraft also have been provided with donation bags. More than EUR 3 million has been collected for the aid initiative since on-board collection began. Swiss also has been collecting leftover cash aboard its flights for many years, and it supports the aid organization *SOS Children's Villages* and the independent employee foundation Swiss Children's Foundation.

On-board collection program

Development of donations in EUR[1]

October 2002: Start of Condor's participation
September 2011: Start of Brussels Airlines' participation
July 2012: Start of Austrian Airlines' participation

1 As the final figures were not yet available at the close of copy, all figures mentioned for 2013 in this article are preliminary.

06/07
Cargo Human Care provides speedy and non-bureaucratic aid for the needy and sick in Nairobi and outlying areas.

08
With its support for the *Life Ball* in Vienna, Austrian Airlines underscores its social commitment in a matter of worldwide relevance.

Lufthansa Cargo works with *Cargo Human Care* to alleviate poverty in Kenya

Cargo Human Care (CHC) is an aid organization comprising Lufthansa Cargo and German physicians. It provides speedy and non-bureaucratic aid for the needy and sick in Kenya's capital city, Nairobi, and the areas surrounding it. This charitable association was established in 2007. During the reporting year it broadened its range of medical services, and once a month it offers medical consultations specifically for cervical cancer. This disease has become a common affliction in developing countries in particular. It is curable if it is detected early and treated with the proper therapy.

The consultations and medical examinations take place at CHC's Medical Center, where the association is already offering vaccinations and prenatal care counseling. The Medical Center devotes much of its resources to treating children living in the neighboring CHC orphanage, *Mothers' Mercy Home*, along with people from outlying areas who otherwise lack access to medical care.

A total of 40 German physicians with various specialisms work on a voluntary basis for CHC. Three times a month they fly to Kenya to spend three days treating impoverished patients. Since 2008 they have logged some 1,700 working days on such missions. Every month approximately 2,000 medical treatments are performed. Lufthansa Cargo provides the flight tickets for the German physicians, in addition to which it has supported CHC since its inception by making cargo capacity available at no charge.

Since 2011 CHC has also offered sponsorships for sick, handicapped, and neglected children living in proximity to the *Mothers' Mercy Home* orphanage. These cover school fees, medical care, and aid to the parents to help with living costs and other necessities. Further information can be found at
www.cargohumancare.de

Cargo Social Care—Close cooperation with *Werkstätten für Behinderte Rhein-Main e.V.*
For more than 30 years Lufthansa Cargo has maintained a close cooperative relationship with *Werkstätten für Behinderte Rhein-Main e.V.*, thereby guaranteeing jobs for people with disabilities. Some 280 employees, for example, manufacture new restraining straps for securing air freight at a rate of more than 6,300 units per month. Roughly 11,000 straps are repaired per month at three locations. All of the products satisfy Lufthansa Cargo's high quality standards, which follow ISO specifications. *Werkstätten für Behinderte Rhein-Main e.V.* is a recognized workshop for persons with disabilities and is dedicated to bringing them into the workforce and allowing them to take part in working life.

Social commitment from Swiss, Austrian Airlines, and Brussels Airlines

Swiss—Strengthening the partnership with *SOS Children's Villages*
Swiss has supported the international aid organization *SOS Children's Villages* for many years. One example of such support is the airline's practice of collecting spare change in all currencies from passengers aboard its flights and donating it to *SOS children's villages*. In 2013 Swiss further solidified its partnership with the aid organization. Swiss is supporting *SOS Children's Villages* with a new package of measures comprising communication and flight services along with fundraising. More than 150,000 Swiss francs were collected on board Swiss aircraft in 2013.

In addition, the airline has committed financial, infrastructural, and logistical support to the independent Swiss Children's Foundation. Employees have the option of donating a portion of their salaries on a monthly basis. This money, along with the donations from passengers, is used to finance houses and living costs for families in *SOS Children's villages*, such as the one in Phuket, Thailand. In 2013 the Swiss Children's Foundation donated more than 112,000 Swiss francs to *SOS Children's Villages*.

As one of Switzerland's largest employers, Swiss has increased its social outreach activities at the local level as well. With the cooperation of the *Pro Juventute* foundation, three children's days were held at Zurich Airport in the summer of 2013 as part of the airline's support program for children and young people. One hundred school children were given an opportunity to explore the airport and afforded an exciting inside view of its complex operations. The program also included a visit to a Swiss long-haul Airbus A340.

Swiss and Edelweiss Air support *Wings for Japan*
The two Swiss airlines in the Lufthansa Group, Swiss and Edelweiss Air, are supporters of the *Wings for Japan* aid project. This project was launched in 2011 by current and former Swiss employees following publication of the book *Tsunami* by the Japanese journalist Ken Mori. In this book, some 80 children between the ages of five and 17 describe, in narrative form and in pictures, their experiences and fates during and after the environmental disaster in Fukushima. *Wings for Japan* set itself the goal of gradually taking all 80 children for a visit to Switzerland, both to afford them a positive change from what in many cases continues to be the harsh reality of their everyday lives and to give them a chance to have fun with Swiss children of the same age. Swiss and Edelweiss Air have supported the project since its inception with flight services between Japan and Switzerland. During the reporting year, 25 Japanese children received invitations to Switzerland.

Austrian Airlines flies for a good cause and takes off with the *Life Ball* plane
For its social projects, Austrian Airlines works primarily with reputable organizations such as *Global 2000* or *Hilfe für Kinder aus Weißrussland* ("Aid to Children from Belarus"), which organize vacations for children. The airline covers the costs of flying the children and offers their adult escorts flight tickets at reduced rates. In addition, Austrian Airlines assists directly affected persons who must go to Austria for medical treatment or surgical procedures by giving them free flight tickets.

With financial support from the Vienna Tourist Board, Austrian Airlines repainted a Boeing 777 with a livery design specially created for the *Life Ball 2014* charitable event. The aircraft has been flying around the world with this special design since April 1, 2014. On May 30, 2014, Austrian Airlines used the official *Life Ball* plane to take famous guests of this charitable event from New York to Vienna. The *Life Ball* in Vienna is an event organized to benefit people infected with HIV or suffering from AIDS. This support is a demonstration of the airline's social commitment in response to an issue of worldwide relevance.

Brussels Airlines—Off-road for a good cause
Employees of the Lufthansa affiliate Brussels Airlines who participated in the *Bike for Africa* campaign swapped aircraft for bicycles for the 240-kilometer tour. At the end of the tour through Uganda, which took place in January 2014, the cyclists donated about EUR 100,000 to a Ugandan aid organization and a Belgian nongovernmental organization. The money had been collected in advance through various sponsoring activities. Brussels Airlines contributed to the initiative by taking charge of logistical matters, which included transporting the bicycles. *Bike for Africa* is a campaign organized by Brussels Airlines' *b.foundation for Africa*, which supports employees involved in various charitable programs.

Environmental sponsorship

A stylized flying crane—a bird that traditionally symbolizes luck—is the trademark of the Lufthansa Group. The Group has made a commitment to protecting the crane. At least 10 of the 15 species of crane found in the world today are threatened with extinction as their brooding, roosting, and wintering habitats continue to be destroyed.

→

The Lufthansa Group protects the *bird of luck*

In 1991, to ensure the survival of these majestic birds, Lufthansa established the *Kranichschutz Deutschland* ("Crane Protection Germany") working group in collaboration with the *Nature Biodiversity Conservation Union* (NABU) and *WWF Germany*. A central element in this project is the Crane Information Center in Gross Mohrdorf, located in the Rügen-Bock region of Mecklenburg-Western Pomerania. With its various exhibitions, events, and guided tours, it serves as an information center, research facility, and meeting place for scientists, conservationists, and bird lovers. In 2013 more than 15,000 visitors to the Crane Information Center were able to learn about the activities of those who are working to protect the birds. The center is part of a pan-European crane protection network. Up to 70,000 gray cranes migrate annually to the area, which counts as one of the most important roosting areas for cranes in Europe. In the information center itself, Lufthansa employees work for several weeks at a time as voluntary *crane rangers*, investing of themselves in a very practical way in the preservation of the airline's heraldic bird. In 2014 the Crane Information Center continues to offer positions for voluntary crane rangers in collaboration with Lufthansa. The Group is also helping the information center with the development of modern information channels. The new Facebook page *Kranichschutz Deutschland* is attracting more and more visitors, and the cranes are also acquiring an enthusiastic following on Twitter. ↙

70,000

Up to 70,000 grey cranes migrate annually to the Rügen-Bock region of Mecklenburg-Western Pomerania.

Further information can be found at
www.kraniche.de
www.facebook.com/kranichschutz

Western European and
Baltic migratory routes
Roosting area
Hibernation area
Vaasa
Lake Kvismaren
Lake Hornborga
Lake Tåkern
Matsalu Bay
Crane Information Center
Gross Mohrdorf
Linum / Nauen
Lake Der-Chantecoq
Hortobágy
Arjuzanx
Gallocanta Lake
Extremadura
Andalusia

Cultural commitment

The Lufthansa Group has been supporting outstanding cultural events and institutions in the field of music for many years. The universal language of music functions as an intermediary through which we allow our common bonds to engender understanding.

[→ 09]

The *Lufthansa Festival of Baroque Music* reaches 30

The Lufthansa *Festival of Baroque Music* in London celebrated its thirty years of existence in May 2014. With *The Year 1714* as its theme, the festival highlighted the historical connection between England and Germany. Celebrations are underway in 2014 in both England and Germany to mark the 300-year anniversary of the ascension to the British throne of Georg Ludwig, elector of Brunswick-Lüneburg, in 1714. As King George I, Georg Ludwig ruled over both Hanover and Great Britain. George Frideric Handel wielded the musical scepter as director of the court orchestra in Hanover and composer at the royal court in London. It was therefore fitting that the 30th *Lufthansa Festival of Baroque Music* opened with the majestic strains of Handel's *Coronation Anthems*.

With Westminster Abbey, St. John's Smith Square, and St. Peter's Eaton Square as its venues, the festival included 12 concerts, several festival walks, and a lecture. Performing were The Sixteen, Pierre Hantai, The Hilliard Ensemble, Laurence Cummings, Rachel Podger, La Risonanza, Dorothee Oberlinger, St. James Baroque and The Choir of Westminster Abbey. This 30th festival brings our involvement to an end, as we will be shifting our attention in relation to corporate citizenship to other issues in the future.

www.lufthansafestival.org.uk

First Global Partner to Cologne's *Gürzenich Orchestra*

The Lufthansa Group has supported the acclaimed *Gürzenich Orchestra* as a First Global Partner since 2010. The *Gürzenich Orchestra* counts as one of Germany's leading opera orchestras and, like Deutsche Lufthansa AG, it is based in Cologne. Since 1986 the ensemble has been one of the house orchestras of Cologne's Philharmonic Hall, where it gives some 50 concerts a year. The orchestra also performs in Cologne Opera productions more than 160 times a year. In 2014, under the leadership of Gürzenich music director Markus Stenz, the orchestra, in keeping with the richness of its tradition, boarded a Lufthansa plane bound for Hong Kong, Seoul, Shanghai, and Peking. Among the items the 130 musicians carried in their luggage were the parts to Richard Strauss's monumental *An Alpine Symphony*, a fitting choice to mark the composer's 150th birthday. Cologne's *Gürzenich Orchestra* delighted classical music fans from all over the world during its Asia tour—including the many employees of the Lufthansa Group who seized the opportunity to hear Cologne's most sought-after brand on the concert circuit in the company of top customers and partners.

www.guerzenich-orchester.de

A traditional New Year's concert in Berlin

On January 27, 2014, the Lufthansa Group treated more than 1,000 invited guests to its traditional New Year's concert in Berlin. On the program was a mix of traditional classical works, big-band selections, and musical comedy numbers performed by various artists. Among the performers were the new crop of young musicians in the *Junge Philharmonie Brandenburg* and the *Youth Jazz Orchestra of Brandenburg*. Also taking part was the music class of a primary school located in Schulendorf in the vicinity of Schönefeld Airport.

Lufthansa Technik's benefit concert for two Hamburg institutions

On August 24, 2013, Lufthansa Technik AG staged for the 11th time, in hangar 7 in Hamburg, the benefit concert billed as *Faszination Musik und Technik* ("The Fascination of Music and Engineering"). The proceeds, which came to roughly EUR 60,000, were donated to the *phönikks foundation* and to the *Stiftung der Freunde der Hamburger Hochschule für Musik und Theater*.

09
The concert in Westminster Abbey was again one of the highlights of the 30th *Lufthansa Festival of Baroque Music*.

The Lufthansa Group supports virtual research travel and online fundraising

The Lufthansa Group supports the *Lab around the world* research project undertaken by the online fundraising platform betterplace.org. The goal of the project is to use digital hotspots all around the world to link with people who have already successfully mobilized others for action in the realm of civil society. The virtual research travelers will ultimately summarize their analyses and findings in a global study. It is hoped that this will help the social sector work more effectively through the Internet.
The Lufthansa Group's employee initiative *help alliance* also uses the digital network for numerous aid projects. And it, too, works closely with betterplace.org.

www.betterplace-lab.org

Sports sponsorship

Lufthansa is the *airline of sports* and as such has served as a reliable partner to numerous prominent institutions, associations, and clubs. The values of fairness, team spirit, precision, and excellence in performance are not, after all, unique to competitive athletics, but are also a source of motivation for the Lufthansa Group and its employees. For this reason, sports sponsorship has been a part of the aviation company's corporate citizenship for a long time.

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The Lufthansa Group supports the German Sports Aid Foundation's *Springboard to the Future* initiative

Since 2007 the Lufthansa Group has been a national sponsor of the German Sports Aid Foundation, which currently supports some 3,800 athletes from all Olympic disciplines, traditional non-Olympic sports, and sports organized for deaf athletes and athletes with disabilities. More than 90% of all German athletes who participated in the 2014 Olympic Games and Paralympics in Sochi were sponsored by the German Sports Aid Foundation. But no one hoping to make it to first place in international competition can avoid making certain sacrifices. Many athletes therefore decide in favor of a professional career path despite outstanding athletic prospects. The German Sports Aid Foundation launched the *Springboard to the Future* initiative to keep the two paths mutually compatible. A package of measures has been put together that includes short-term internships lasting four to six weeks and a mentoring program, all designed to eliminate the disadvantages that those who pursue an athletic career face when making post-athletic career choices. The Lufthansa Group is leading the way as a positive example and supports *Springboard to the Future*. A total of 100 German commercial enterprises have already joined the initiative.

[→ 10]

→

Lufthansa flies German Olympic and Paralympic teams to Sochi

As the official airline of the German Olympic team and the National Paralympic Committee Germany, Lufthansa took care of flying the German teams to Sochi. These teams have been flying with Lufthansa to athletic venues since 1972. Since the airline does not normally include the city on the Black Sea in its itinerary, we published a special flight schedule just for these international athletic events, one that would allow the athletes to fly directly

and with minimal stress. This left them free to devote their energy to preparing for the competitions. But many other nations and fans also availed themselves of this service, so that activity at the specially-marked Sochi gate at the Frankfurt airport and aboard the Airbus A321 used on this route had an atmosphere every bit as international as in the Olympic and Paralympic villages. A special highlight was the Olympic team's arrival in Munich aboard the special Lufthansa flight. German President Joachim Gauck received the athletes right on the ramp and congratulated them on their performance.

10

Participants in the Sochi Olympics arrive in Munich, where they are welcomed by Germany's President Gauck.

11

Fanhansa: Lufthansa is the *airline of sports* and that of sports fans as well. Our planes make this clear during the 2014 FIFA World Cup in Brazil.

European Wheelchair Basketball Championships in Frankfurt

Frankfurt is Lufthansa's main hub. As a partner of the National Paralympic Committee Germany, it was only natural that Lufthansa would also support the European Wheelchair Basketball Championships in Frankfurt. Our service professionals took charge of assisting the teams arriving at the airport en route to Frankfurt. We also beat the drum for the European Championships, because the athletes with disabilities accomplish extraordinary things and serve as models for all segments of society. In the final, the German women's team, who were Olympic champions in London, were ultimately forced by the Dutch team to admit defeat before more than 3,000 enthusiastic spectators. ↙

www.lufthansagroup.com/sports

Outlook →

As *good corporate citizens*, the Lufthansa Group and its individual companies are involved in numerous and diverse projects dealing with a broad range of issues. In recent years there has been a marked change in the expectations of our stakeholders where social commitment is concerned. This change reflects the rapid transformations taking place in our globalized world and the associated issues and problems encountered across broad segments of our own business environment. How to approach social commitment with a compelling, intelligible, and goal-oriented plan of action is one that arises with ever greater prominence and urgency.
For this reason we are working towards a reorientation and consolidation of our commitments. One point of emphasis in this reorientation, apart from more active involvement of both executives and employees, will be a thematic focus on social and humanitarian projects. Our paramount goal has been and continues to be to ensure that our efforts have an enduring impact. With the employee initiatives *help alliance*, *Cargo Human Care*, and *Swiss Children's Foundation*, we already have in our possession within the Group established and recognized aid organizations. They constitute a valuable foundation for further development of the Lufthansa Group's corporate citizenship commitments.

Service and Information

→ Glossary / Editorial information / Contact persons / Methodology of calculations / Overview of the fleet of the Lufthansa Group

Glossary

A

AEA—Association of European Airlines
www.aea.be

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, Lufthansa 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 efficient movement of aircraft in all phases of operations.

Atmosphere
The whole mass of air surrounding the Earth. It is divided into various layers, distinguished from one another by distinct differences in vertical bands of temperature. 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. The so-called ozone layer is also located in the stratosphere at altitudes of about 25 to 30 kilometers. Today's commercial aircraft fly at cruising altitudes of between eight and 13 kilometers. According to the latest research, air traffic emissions do not contribute to the reduction of the ozone layer.

B

B.A.U.M.—Bundesdeutscher Arbeitskreis für Umweltbewusstes Management e.V. (Federal Working Group for Environmentally-Aware Management)
B.A.U.M. was founded in 1984 as the first independent environmental initiative of German business. With roughly 550 members, it is the largest of its kind in Europe today. Lufthansa has been a member of the Working Group since 1997.
www.baumev.de

BDL—Bundesverband der Deutschen Luftverkehrswirtschaft (Federal Association of the German Air Transport Industry)
Lufthansa is a founding member of the Federal Association of the German Air Transport Industry (BDL), which has represented the interests of the German aviation industry with a single voice since December 2010. Its main goals are to make politicians and journalists more aware of aviation's economic and employment-related importance and to strengthen Germany as a business location for aviation in general.
www.bdl.aero

C

Carbon dioxide (CO_2)
Gas resulting in nature from the burning or decomposition of organic substances (e.g. plant material) and from human or animal respiration. 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 2.5% of the CO_2 emissions due to human activities are caused by global air traffic. (Source: International Energy Agency (IEA) 2012, 2010 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.

CDA—Continuous Descent Approach
Procedure for a flight's approach phase that requires less engine thrust and is therefore quieter and more fuel efficient. However, this type of approach is possible only if there are no constraints due to heavy air traffic in the airspace concerned.

CDP—Carbon Disclosure Project
The CDP is an independent organization working for public welfare, whose members in 2014 comprise more than 760 large-scale investors worldwide. The goal of this initiative, which was founded in 2002, is to motivate the world's largest publicly quoted companies to make their greenhouse gas emissions transparent and to bring about lasting reductions in them. For this purpose, CDP and its partners developed two indexes: the *Carbon Disclosure Leadership Index*, which lists companies that have made their emissions particularly transparent, and the *Carbon Performance Leadership Index*, which takes into account concrete climate protection performance.

Chapter 4 aircraft
Aircraft that comply with the strictest noise protection standard currently in force—the Chapter 4 noise standard. The Environmental Committee (CAEP) of the ICAO agreed on this standard in September 2001. As a result, all aircraft newly certified since 2006 must remain cumulatively below the Chapter 3 noise levels by 10 decibels or more. The maximum noise emission values for aircraft were introduced by the ICAO under Annex 16 to the Convention on International Civil Aviation. Noise levels depend on the aircraft's maximum takeoff weight and number of engines.

CO
see *Carbon monoxide*

CO_2
see *Carbon dioxide*

Codeshare
A codeshare is a flight segment that is sold under the flight number of one airline while being operated either partly or entirely by another airline. Both companies maintain their independent profiles in the market.

Compliance
Compliance describes the entirety of all measures that ensure the lawful conduct of companies, their management bodies, and their employees with regard to legal directives and interdictions.

Corporate responsibility (CR)
Corporate responsibility expresses the degree to which a company assumes accountability for the effects its business activities have on employees, customers, society, and the environment.

Corporate university
Corporate education institution for professionals and managers. See also *Lufthansa School of Business (LHSB).*

CPI—Customer Profile Index
Lufthansa German Airlines, in cooperation with renowned institutes, continually conducts worldwide surveys to assess the level of customer satisfaction. These data are compiled in the Customer Profile Index, which informs the entire company, in the form of a single figure, of the current status of customer satisfaction.

CVA—Cash Value Added
A measure of company performance in terms of cash generated through operations. If the cash flow generated during a period (EBITDAplus) is greater than the minimum cash flow needed to cover capital costs, then the CVA figure is positive, and value is created.

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 management offers approaches for handling human differences for the benefit of company and employees alike.

DLR—Deutsches Zentrum für Luft- und Raumfahrt (German Aerospace Center)
The DLR serves scientific, economic, and social purposes. It maintains 35 institutes and research centers. Its declared goal is to help—using the means of aviation and space flight—to secure and shape the future. In its work, the DLR also seeks cooperation and allocation of research tasks among European partners.
www.dlr.de

DNWE—Deutsches Netzwerk Wirtschaftsethik (German Network for Business Ethics)

DNWE is a nonprofit organization of which Lufthansa has been a member since January 1998. DNWE has about 600 current members, including many from German business, politics, religion, and science. At the same time, DNWE is a national association of the European Business Ethics Network (EBEN).
www.dnwe.de

E

econsense—Forum Nachhaltige Entwicklung der Deutschen Wirtschaft e.V. (Forum for Sustainable Development of German Businesses)
An association of globally active corporations and organizations in German industry that have integrated the guiding principle of sustainable development into their corporate strategies. Lufthansa is a founding member of this cross-industry network, which was set up in 2000.
www.econsense.de

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.

Ethibel—Ethibel Sustainability Index
The independent Belgian agency Ethibel has listed Lufthansa in its Ethibel Investment Register and the Ethibel Sustainability Index (ESI). The ESI offers institutional investors, asset managers, banks, and private investors a comprehensive overview of the financial results of companies that distinguish themselves by pursuing sustainable business practices. Since the merger with Vigeo and Stock at Stake in 2005, this index has been part of Vigeo. However, Forum Ethibel continues to be responsible for the ethical criteria and the composition of the ESI. Updates of and calculations for the index are performed by the internationally renowned index provider Standard & Poor's.
www.ethibel.org

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*.

FTSE4Good
The index was introduced in 2001 by FTSE, a wholly owned subsidiary of the London Stock Exchange. It lists only those companies that meet the internationally accepted standards for corporate responsibility in the following dimensions: environmental management, climate change, human and labor rights along the supply chain, corporate governance, and anti-corruption efforts. Lufthansa has been listed since 2001.
www.ftse.com

Fuel dump
Dumping of fuel in flight due to emergency situations. A procedure used on long-haul aircraft before unscheduled landings (e.g. in the event of technical problems or serious passenger illness) to decrease the aircraft's weight to the maximum permissible landing weight. In the event of a fuel dump, special air space is assigned to the aircraft, if possible above uninhabited or thinly populated areas. Fuel is usually dumped at altitudes of 4–8 kilometers. A minimum altitude of 1,500 meters and a minimum speed of 500 km/h are required. The aircraft may not fly a fully closed circle. The dumped kerosene forms a fine mist in the turbulence behind the aircraft. Despite the use of highly sensitive methods of analysis, no contamination has been detected so far in plant or soil samples after fuel dumps.

G

Global Compact
see *UN Global Compact*

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

ICC—International Chamber of Commerce
The ICC was founded in 1919 as the World Business Organization. More than 1,500 business organizations and over 5,000 corporations are organized in the worldwide framework of the ICC. Lufthansa has been a member since 1955.
www.icc-deutschland.de

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

K

Kerosene
Fuel for jet and propeller engines that is chemically similar to petroleum. Like diesel fuel or gasoline, kerosene is produced by distilling crude oil; unlike these fuels, kerosene does not contain halogenated additives.

L

LHSB—Lufthansa School of Business
Germany's first corporate university. It has received multiple awards for the worldwide standards it establishes for the development and training of professionals and managers. The LHSB supports processes of change within the Group and promotes a shared management culture.

Low-cost segment
Airlines offering predominantly low fares, but featuring reduced or separately charged services on the ground and in the air. Flights are most often operated to/from airports outside of major population centers.

M

Mentoring
Instrument for targeted support of junior employees. Focuses on regular personal contacts between mentor and mentee.

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%. Depending on the type of aircraft and operational conditions, this value varies between six and 20 kilograms per tonne of fuel burned. Air traffic contributes 2–3% 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.

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 ultraviolet 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 3–4% on the heavily-flown North Atlantic routes.

P

Passenger kilometers (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).

Pro Recycling Paper Initiative
Founded in 2000, the initiative unites various industries and aims at promoting intensive use and the acceptance of recycling paper. Lufthansa is one of the initiative's founding members.
www.papiernetz.de

R

RSB—Roundtable for Sustainable Biofuels
International initiative to develop a global standardization and certification system for agrofuels.

S

SAFUG—Sustainable Aviation Fuel Users Group
Initiative of airlines, aircraft manufacturers, and providers of refinery technology whose goal is to accelerate the development and commercialization of sustainable fuels for the air transport industry.

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

Seat load factor (SLF)
Passenger-related measure of aircraft capacity utilization: the ratio of transport performance (PKT, passenger kilometers transported) to capacity (PKO, passenger kilometers offered).

SES—Single European Sky
Describes the efforts of the European Commission since the late 1990s to restructure European airspace for the purpose of optimizing traffic flows and dissolving the airspace's fragmented structure, which is defined by national borders and interests, by creating a limited number of Functional Airspace Blocks (FABs).

Slot
Designated point in time at which an airline may use an airport's runway for takeoff or landing.

Stakeholder
Groups or individuals who formulate their demands on a company (e.g. attainment of corporate goals) and pursue these either personally or through representatives. This includes shareholders, employees, customers, suppliers, and others.

Sustainable development
According to the guiding principle of sustainable development formulated in 1987 by the World Commission for Development and the Environment (Brundtland Commission), "sustainable development is […] a form of development that meets the needs of today's generation without jeopardizing the abilities of future generations to satisfy their own." For businesses, this means acting responsibly not only in economic matters but also in environmental and social issues. All three aspects—economic, ecological, and social—must be kept in balance.

T

Tonne kilometer (TKO/TKT)
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.

Town meeting
Information event for employees at different locations of a company.

Transparency International
Anti-corruption organization, of which Lufthansa has been a member since 1999.
www.transparency.de

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.

UN Global Compact
Global network in whose context the United Nations cooperates with private-sector corporations and civil action organizations to advance human rights, labor standards, environmental protection, and anti-corruption measures. Deutsche Lufthansa AG has been a member since 2002.
www.unglobalcompact.org

V

VOC—Volatile Organic Compounds
Volatile organic substances that are characterized by high steam pressure and thus evaporate easily into the atmosphere at room temperature. VOCs are present in solvents, cleaning agents, fuels, and other substances. In the presence of nitrogen oxides and intense sunlight, VOCs lead to the generation of ozone.

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.

Work-life balance
Refers to a healthy equilibrium between work and private life.

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You can find contact partners in the area of Corporate Responsibility at
www.lufthansagroup.com/responsibility

Please note that www.LH.com is the central contact point for all inquiries concerning customer service
www.LH.com

Under the header *Help* you will find full information on how to contact Lufthansa.

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

Scope of consolidation
Reporting on transport performance, kerosene consumption, and emissions from flight operations in 2013 is—unless noted otherwise—based on the following scope of consolidation:

- Lufthansa (including its regional partners* Lufthansa CityLine, Air Dolomiti, Eurowings, Augsburg Airways), Germanwings, Swiss (including Edelweiss Air), Austrian Airlines, and Lufthansa Cargo. Not included are services performed by third parties, as their performance and the aircraft they use are 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/100 pkm) 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 management system
The Lufthansa Group collected the environmental data used in this report with the aid of its environmental management system. This system also defines how data are verified and transmitted to the Group Environmental Issues division. The basis for data collection is Lufthansa's own environmental database.

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% even though it would be logical to expect them to.

* Augsburg Airways flew in the service of Lufthansa until the end of the 2013 summer flight schedule. The cooperation with Contact Air ended in September 2012. Beginning with the 2013 reporting year, therefore, the consumption figures for Contact Air are no longer included in the key performance figures.

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 December 31, 2013 ↙
in EPNdB ↙

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

Of the 596 aircraft in the Lufthansa Group's active fleet, 593 fulfil the stringent Chapter 4 noise standard of the International Civil Aviation Organization (ICAO). The most important element of Chapter 4 is the *minus 10 EPNdB* criterion (Effective Perceived Noise dB); see the vertical broken line in the overview on the left. 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. To allow a more transparent depiction, an improved method of analysis was developed for the previous issues of *Balance*, which include the individual noise certificate data of all Group aircraft. Different versions of an aircraft and its engines by year of construction are thus better taken into account. While the conservative approach used until reporting year 2008 meant that only the values of the sub-fleet with the lowest cumulated margin were reported to describe an aircraft fleet, the new analytical method used since reporting year 2009 means that the value ranges from the lowest to the highest cumulated margin are now 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. In addition, numerous additions and withdrawals in individual fleets lead to changes in the value ranges reported.

Grouping of aircraft types according to MTOW (maximum takeoff weight):
- less than 50 t
- 50 to 150 t
- more than 150 t

This division generally corresponds to a grouping of regional, continental, and intercontinental aircraft

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

Prizes and awards

In 2013 the Lufthansa Group and its subsidiaries once again received numerous prizes and awards. Here is a selection:

- Lufthansa's first-class service is awarded five stars in the 2013 *Skytrax Star Rating*.
- *Best Brands* 2013 brand ranking: Lufthansa is among the top 10 corporate brands.
- Austrian Airlines' *Waliclean* project receives the city of Vienna's environmental prize for a revolutionary method of cleaning aircraft toilets.
- Lufthansa Cargo is voted *Best International Freight Carrier* by the Airforwarders Association in the U.S.
- 2013 *MobileTech Award* for the Lufthansa app.
- Lufthansa Technik wins the *MRO Company of the Year* prize in the 2013 *Air Transport News Awards.*
- As in previous years, Lufthansa Cargo is voted *Best European Air Freight Carrier* by *Air Cargo Week* in the *Cargo Airline of the Year Awards*.
- The magazine *Business Traveller Middle East* gives Lufthansa the *Best European Airline in the Middle East* award in 2013.
- Lufthansa Technik receives two awards in publisher UBM Aviation's *Aircraft Technology Engineering & Maintenance Awards*: *Best MRO Provider in Europe* and *Best Engine MRO Provider*.
- For the eighth time in a row, Lufthansa's Corporate Fuel Management wins the *Best International Fuel Department* prize.
- The German federal government awards the *Leuchtturm Elektromobilität* ("Electro-Mobility Beacon") title to the E-PORT AN electro-mobility initiative at Frankfurt Airport, in which the Lufthansa Group is a participant.
- The portal LH.com receives the *Business Traveller Award* in the category *Best Internet Page for Business Travelers*.
- The Lufthansa Group receives the 2013 *Airline Business Technology Award*.
- For the third time in a row, the Lufthansa Group is named *Europe's Leading Airline* in the *World Travel Awards*.
- Lufthansa receives the *Skytrax Award* for the *Best First-Class Terminal*.
- Lufthansa wins top honors in the 2013 *World Airline Awards* in the *Best First-Class Airline Lounge*, *Best Western European Airline*, and *Best Transatlantic Airline* categories.
- Lufthansa receives three *GlobeRunner Awards* in 2013 from the American travel magazine *Frequent Business Traveler*: In the *Best First-Class Lounge* category and, for the second time, in the *Best Frequent Flyer Program* category with Miles & More. Lufthansa also receives, on behalf of the Star Alliance, and as one of its founding members, the award for *Best Airline Alliance*.
- *International 5-Star Diamond Award* for Lufthansa's first-class service to New York. Altogether, Lufthansa Services receives three awards from the *American Academy of Hospitality Sciences* (AAHS): for Lufthansa's first-class services aboard its long-haul fleet, for its first-class terminal in Frankfurt, and for its first-class lounge at JFK Airport in New York City.
- Lufthansa Munich receives the *International 5-Star Diamond Award* in 2013. This is the third Lufthansa first-class lounge, after those in Frankfurt and New York, to be awarded this prize.
- Swiss receives the *Europe's Leading Airline Business Class* award in the *World Travel Awards*.
- Swiss receives the *Best Airline in European Air Traffic* award in the *Business Traveller Awards* (Germany) and the *Best Business-Class Lounge* award in *Frequent Business Traveler's GlobeRunner Awards.*

Current awards in 2014

- Lufthansa receives award as an exceptionally sustainable airline: The *Mit gutem Gewissen* ("In Good Conscience") focus study awards Lufthansa the *Gold Seal*.
- The joint E-PORT AN project at Frankfurt Airport wins the prestigious *GreenTec Award* in the aviation category. The jury was impressed with projects of the Lufthansa Group, Fraport AG, the State of Hesse and the Rhine-Main Model Electro-Mobility Region for a *green apron*.
- *StartCargo*, the trainee program at Lufthansa Cargo AG, receives the *Absolventa* job portal's prestigious seal of quality. This is the first and only seal of its kind and stands for career-promoting and fair trainee programs.

The operating fleet of the Lufthansa Group

(as of December 31, 2013)

Lufthansa and regional partners

Airbus A380-800 LH: 9 aircraft, 526 seats, 12,000 km range

Boeing 747-8 LH: 9 aircraft, 362 seats, 13,100 km range

Boeing 747-400 LH: 18 aircraft, 352* seats, 12,500 km range

Airbus A340-600 LH: 24 aircraft, 306 seats, 12,600 km range

Airbus A340-300 LH: 21 aircraft, 266* seats, 11,100 km range

Airbus A330-300 LH: 18 aircraft, 221* seats, 10,000 km range

Airbus A321-100/200 LH: 62 aircraft, 200 seats, 2,900/4,350 km range

Airbus A320-200 LH: 57 aircraft, 168 seats, 3,020 km range

Airbus A319-100 LH: 32 aircraft, 138 seats, 3,260 km range

Boeing 737-500 LH: 14 aircraft, 120 seats, 1,950 km range

Boeing 737-300 LH: 9 aircraft, 140 seats, 2,000 km range

Embraer 195 CL: 24 aircraft, 120 seats, 2,450 km range
EN: 10 aircraft, 120 seats, 2,450 km range

Embraer 190 CL: 9 aircraft, 100 seats, 3,390 km range

CRJ900 CL: 12 aircraft, 90 seats, 2,260 km range
EW: 23 aircraft, 90 seats, 2,260 km range

CRJ700 CL: 16 aircraft, 70 seats, 2,310 km range

Germanwings

Airbus A319-100 4U: 39 aircraft, 150* seats, 3,500 km range

Airbus A320-200 4U: 5 aircraft, 174 seats, 3,020 km range

Lufthansa Cargo

Boeing MD-11F LH: 17 aircraft, 516 m³/89.4 t, 7,000 km range

Boeing 777F LH: 2 aircraft, 639.1 m³/102.9 t, 9,045 km range

Swiss and Edelweiss Air

Airbus A340-300 LX: 15 aircraft, 219 seats, 10,500 km range

Airbus A330-300 LX: 14 aircraft, 236 seats, 8,400 km range

Airbus A321-100/200 LX: 8 aircraft, 200* seats, 3,200 km range

Airbus A320-200 LX: 24 aircraft, 168* seats, 3,650 km range

Airbus A319-100 LX: 5 aircraft, 138* seats, 3,000 km range

Avro RJ100 LX: 20 aircraft, 97 seats, 3,000 km range

Airbus A330-300 WK: 1 aircraft, 332 seats, 10,000 km range

Airbus A330-200 WK: 1 aircraft, 285 seats, 11,500 km range

Airbus A320-200 WK: 4 aircraft, 168* seats, 4,950 km range

Austrian Airlines

Boeing 777-200 OS: 4 aircraft, 309* seats, 11,500 km range

Boeing 767-300 OS: 6 aircraft, 240* seats, 9,800 km range

Airbus A321-100/200 OS: 6 aircraft, 200 seats, 2,360/3,500 km range

Airbus A320-200 OS: 16 aircraft, 174* seats, 4,300 km range

Airbus A319-100 OS: 7 aircraft, 138 seats, 4,500 km range

Fokker 100 OS: 15 aircraft, 100 seats, 2,000 km range

Fokker 70 OS: 6 aircraft, 80 seats, 2,085 km range

DHC 8-400 OS: 14 aircraft, 76 seats, 1,630 km range

Range indicated in general with maximum number of passengers or payload, respectively.

* Maximum number of seats, different versions in operation

Legend

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

5 years
of the strategic
environmental program

15 years
of involvement in
noise research

15 years
of cross-company
mentoring

15 years
of *help alliance*

20 years
of support for
climate research

20 years
years of reporting
on the environment
and sustainability—
20 years of *Balance*

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