



Issue 2012

# Balance

Key data on sustainability within the Lufthansa Group



You will find further information on sustainability within the Lufthansa Group at:

[www.lufthansa.com/responsibility](http://www.lufthansa.com/responsibility)

Order your copy of our Annual Report 2011 at:

[www.lufthansa.com/investor-relations](http://www.lufthansa.com/investor-relations)

### **The new Boeing 747-8 Intercontinental**

The new Boeing 747-8 Intercontinental is the advanced version of one of the world's most successful commercial aircraft. In close cooperation with Lufthansa, Boeing has developed an aircraft that is optimized not only in terms of comfort but also in all dimensions of climate and environmental responsibility. The fully redesigned wings, extensive use of weight-reducing materials and innovative engine technology ensure that this aircraft's eco-efficiency has again been improved significantly in comparison with its predecessor: greater fuel efficiency, lower emissions and significant noise reductions (also see page 27).

The "Queen of the Skies," as many Jumbo enthusiasts call the "Dash Eight," offers an exceptional travel experience in all classes of service, especially in the exclusive First Class and the entirely new Business Class. In this way, environmental efficiency and the highest levels of travel comfort are brought into harmony. Lufthansa has ordered 20 aircraft of this type.

## Editorial information

Published by  
Deutsche Lufthansa AG  
Lufthansa Group Communications, FRA CI  
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### Design and production

organic Marken-Kommunikation GmbH

### Copy deadline

18 May 2012

### Photo credits

Jens Görlich/MO CGI (cover, page 5, 7, 35, 85)  
SWISS (page 12)  
Brussels Airlines (page 13)  
Reto Hoffmann (page 24)  
AeroLogic (page 29)  
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Printed in the Federal Republic of Germany  
ISSN 1612-0906

- 1 Source: Lufthansa Annual Report 2011
- 2 Values 2011 do not include bmi (see "About this report" on page 5); comparative 2010 value adjusted for bmi.
- 3 For the reporting year 2011 the following companies are included: Lufthansa German Airlines (including Lufthansa Italia and Lufthansa Regional: Lufthansa CityLine, Air Dolomiti, Eurowings, Contact Air, Augsburg Airways), Lufthansa Cargo, SWISS (including Edelweiss Air), Austrian Airlines and Germanwings. Excluding the share of third parties as Lufthansa can influence neither performance nor the equipment used (see also table "Share of third parties" on page 66).
- 4 Types of flights taken into account: all scheduled and charter flights.
- 5 Values do not include bmi.
- 6 See also table "Fuel consumption" on page 66.
- 7 The emissions values 2010 (excluding CO<sub>2</sub>) were corrected as a calculation error occurred in the preceding year.
- 8 Companies referred to as in 3, but including the services of third parties, as these contribute to the Group's results. Types of flights as in 4, but including ferry flights, as these represent costs.
- 9 *Balance*: segments (operational perspective); Annual Report: distance (customer perspective); one distance can include several segments, e.g. in the event of stops en route.
- 10 *Balance*: on the basis of all passengers aboard; Annual Report: on the basis of all revenue passengers.



# At a glance

## Business performance data<sup>1,2</sup>

		2011	2010	Change
Revenue	million €	28,734	26,459	+ 8.6 %
of which traffic revenue	million €	23,779	21,466	+ 10.8 %
Operating result	million €	820	1,020	- 19.6 %
Profit/loss from operating activities	million €	773	1,386	- 44.2 %
Net profit/loss for the period	million €	- 13	1,131	
Total assets	million €	28,081	29,320	- 4.2 %
Cash flow from operating activities	million €	2,356	2,992	- 21.3 %
Capital expenditure	million €	2,566	2,273	+ 12.9 %
Equity ratio	percent	28.6	28.4	0.2 PP

## Personnel data<sup>2</sup>

		2011	2010	Change
Number of employees (on 31.12., respectively)		116,365	113,406	+ 2.6 %
of these, in Germany		67,263	65,159	+ 3.1 %
of these, outside Germany		49,102	48,247	+ 1.7 %
Staff costs <sup>1</sup>	million €	6,678	6,491	+ 2.9 %
Revenue/employee <sup>1</sup>	thousand €	249	233	+ 6.7 %
Staff costs/revenue <sup>1</sup>	percent	23.2	24.5	- 1.3 PP
Average age	years	40.8	40.7	+ 0.1 Y
Part-time ratio, absolute	percent	27.1	26.9	+ 0.2 PP
Part-time ratio, men	percent	13.3	13.6	- 0.3 PP
Part-time ratio, women	percent	44.2	43.9	+ 0.3 PP
Share of women in management	percent	13.6	13.1	+ 0.5 PP

## Environmental data<sup>3,4</sup>

		2011 <sup>5</sup>	2010	Change
<b>Resource consumption</b>				
Fuel consumption <sup>6</sup>	tonnes	9,023,671	8,459,255	+ 6.7 %
Fuel consumption, specific, passenger transportation	l/100 pkm	4.18	4.20	- 0.4 %
Fuel consumption, specific, freight transport	g/tkm	231	231	+ 0.2 %
<b>Emissions<sup>7</sup></b>				
Carbon dioxide emissions	tonnes	28,424,568	26,646,655	+ 6.7 %
Carbon dioxide emissions, specific, passenger transportation	kg/100 pkm	10.53	10.58	- 0.4 %
Nitrogen oxide emissions	tonnes	133,903	124,144	+ 7.9 %
Nitrogen oxide emissions, specific, passenger transportation	g/100 pkm	49.4	48.8	+ 1.3 %
Carbon monoxide emissions	tonnes	20,152	19,066	+ 5.7 %
Carbon monoxide emissions, specific, passenger transportation	g/100 pkm	8.2	8.4	- 2.0 %
Unburned hydrocarbons	tonnes	2,252.8	2,100.4	+ 7.3 %
Unburned hydrocarbons, specific, passenger transportation	g/100 pkm	0.9	0.9	+ 0.2 %

## Transport performance data

		Balance <sup>3,4,5</sup>	Change	Annual Report <sup>2,8</sup>	Change
Number of flights <sup>9</sup>		1,012,675	+ 3.1 %	1,050,728	+ 4.1 %
Passengers carried <sup>10</sup>		98,122,199	+ 10.9 %	100,602,543	+ 8.5 %
Freight and mail carried	tonnes	2,120,191	+ 4.8 %	2,120,191	+ 4.8 %
Seat kilometers offered, SKO	million pkm	253,306	+ 10.8 %	258,263	+ 10.2 %
Freight tonne kilometers offered, FTKO	million tkm	14,954	+ 5.4 %	16,260	+ 6.3 %
Tonne kilometers offered, TKO	million tkm	40,052	+ 8.6 %	40,798	+ 8.3 %
Passenger kilometers transported, PKT <sup>10</sup>	million pkm	202,656	+ 8.3 %	200,376	+ 7.5 %
Freight tonne kilometers transported (incl. third-party performance), FTKT	million tkm	9,710	+ 3.2 %	10,861	+ 4.1 %
Tonne kilometers transported, TKT	million tkm	30,071	+ 6.5 %	29,906	+ 5.8 %







**Dear Readers,**

The past year again demanded a great deal of us. All of the business segments within the Lufthansa Group worked hard and held their own in global competition. However, extraordinary events such as those in Japan or the Arab region, the European debt crisis, record-high fuel prices, the German aviation tax and the night-flight ban in Frankfurt burdened our business performance in 2011. Although we fared better than many of our competitors, the current results make it a very challenging task long-term to bear the necessary substantial investments in aircraft and products in the air and on the ground. By 2018 we will have taken delivery of an additional 168 highly efficient and quiet aircraft for our fleet, at a list price of 17 billion euros. The highlight in 2012 is the new Boeing 747-8, which is 15 percent more fuel efficient and 30 percent quieter than its predecessor model.

As one of the largest companies in world aviation, we have defined environmental care as a top-priority corporate goal and continued our ambitious fuel efficiency programs despite the current difficult business climate. As a result, the specific fuel consumption of the Lufthansa Group fleet could be reduced again in 2011 – to 4.18 liters per passenger and 100 kilometers. To reach the climate protection goals we have set ourselves, we will

continue to optimize systematically. Last year, we successfully concluded the six-month trial of biofuel in scheduled operations. As this type of fuel has proven its fitness for daily operations, we are now concentrating on suitability, availability, sustainability and certification of the raw materials needed for its production. Additionally, we are supporting climate research with our fourth project already and thus making an important contribution to researching the Earth's atmosphere and optimizing climate models.

In the future, we will do everything we can to ensure that the Lufthansa Group remains on course with regard to ecological, economic and social criteria. We will only be able to do so, however, if we are able to achieve the necessary profits. It is also against this background that we have adopted SCORE, our new corporate program to ensure the long-term success of the Lufthansa Group. It incorporates all business segments and airlines as well as all administrative areas. They will each do their part, so that the operating result of our company will improve sustainably by at least 1.5 billion euros by the end of 2014, compared with 2011. We need to take action now to be able to invest in innovative products for our customers, in our employees and in environmental care in the future as well.

Thank you for your interest in our company. I wish you an interesting read and perhaps some new insights from this issue of our Sustainability Report.

A handwritten signature in black ink that reads "Christoph Franz". The signature is written in a cursive, slightly slanted style.

**Christoph Franz**

Chairman of the Executive Board and CEO  
Deutsche Lufthansa AG

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## 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 refer to the financial year 2011.

The understanding of corporate responsibility at the Lufthansa Group is based on the following five pillars:

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

The section “Corporate governance and compliance” is part of the chapter “Economic sustainability.”

### Scope of consolidation

Reporting with regard to transport performance, fuel consumption and emissions from flight operations in the financial year 2011 is based on the following scope of consolidation<sup>1</sup>:

- Companies: Lufthansa German Airlines (including Lufthansa Italia (until October 2011) and Lufthansa Regional with Lufthansa CityLine, Air Dolomiti, Eurowings, Contact Air, Augsburg Airways), Germanwings (since January 2011), Lufthansa Cargo, Swiss International Air Lines (SWISS) including Edelweiss Air (since January 2011) and Austrian Airlines. Excepted are third-party services, as Lufthansa has no influence either on their performance or on the aircraft they operate.
- Types of service: all scheduled and charter flights.

### Methodology of calculations

#### Kerosene in absolute terms

The calculation of kerosene consumption is based on actual flight operations (i.e. using actual load factors and flight routings), according to the so-called “gate-to-gate” principle. This includes all phases of a flight – from taxiing on the ground to flying detours and in holding patterns in the air.

#### Emissions in absolute terms

The calculation of emissions from flight operations is based on the actual transport performance (i.e. actual load factors) and the actual absolute quantity of kerosene consumed during the year in review. In this context, each aircraft-engine combination that exists in the fleet is considered separately, and the corresponding values are calculated by means of computer programs provided by the respective aircraft and engine manufacturers. The annual average flight profile of each subset in 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<sub>x</sub>), carbon monoxide (CO) and unburned hydrocarbons (UHCs) in particular. Carbon dioxide (CO<sub>2</sub>) emissions do not require special calculation methods, as they are generated in a fixed relationship to the quantity of kerosene burned. The combustion of 1 tonne of kerosene generates 3.15 tonnes of CO<sub>2</sub>.

#### Specific consumption and emission values

Calculating specific consumption and emissions entails expressing absolute values in relationship to transport performance. For example, the ratio “liters per 100 passenger kilometers” (l/100 pkm) is calculated on the basis of actual load factors, distances actually flown and the kerosene actually consumed. The distances used in the calculations are great-circle distances.



<sup>1</sup> Unless a different scope of consolidation is expressly named.

## **Evaluation and validation of data and information**

### **Environmental management system**

The data used in this report were collected by means of Lufthansa's environmental management system. This system also determines the methods for data verification and its transmission to the division Group Environmental Issues. The basis for data collection is Lufthansa's own Environmental Database.

### **Accuracy**

The figures shown in tables and illustrations are rounded. However, values indicating changes from the previous year always refer to precise figures. For this reason, it is possible that a specific value may remain the same from one year to the next, while a relative change is indicated.

### **Comparability**

Due to changes in the portfolio over the past years, the figures pertaining to personnel and environment in this report are only to a limited extent comparable with those reported for the previous years. For example, Lufthansa sold British Midland (bmi), which was fully consolidated in 2010, under a contract signed on 22 December 2011 (see page 13), for which reason the Annual Report 2011 shows that company as a discontinued operation. For the same reason, the 2011 environmental and personnel indicators no longer include bmi. By contrast, Germanwings and Edelweiss Air, which is part of SWISS, were included in the calculation of the 2011 indicators for the first time. Furthermore, the performance and consumption data of Lufthansa Italia are included in those of Lufthansa German Airlines. The reason for this is that the Lufthansa Italia brand, which was introduced in 2008, was only continued until the end of the summer timetable (29 October 2011). There are also certain differences in approach compared to the Annual Report 2011 when calculating passenger numbers and the related indicators (see explanations relating to the table "At a glance" on page 2).

### **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 German edition of the previous year's report was published on 19 May 2011; the English edition followed shortly thereafter.

## **Additional information on the Internet**

In addition to this report, Lufthansa also informs readers via the Internet about the activities in the area of sustainability within the Lufthansa Group. [www.lufthansa.com/responsibility](http://www.lufthansa.com/responsibility)

## **Disclaimer in respect of forward-looking statements**

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

Since forward-looking statements are by their nature subject to uncertainties and imponderable risk factors – such as changes in underlying economic conditions – and rest on assumptions that may not or divergently occur, it is possible that the Group's actual results and development may differ materially from those implied by the forecasts. Lufthansa makes a point of checking and updating the information it publishes. It cannot, however, assume any obligation to adapt forward-looking statements to accommodate events or developments that may occur at some later date. Accordingly, it neither expressly nor conclusively accepts liability, nor does it give any guarantee for the actuality, accuracy and completeness of this data and information.





# The Lufthansa Group

Facts and figures

Business segments

Corporate responsibility

The Lufthansa Group fleet







Stakeholder dialogue

Prizes and awards



# The Lufthansa Group – Facts and figures

## At a glance

	Corporate headquarters	<b>Cologne</b>
	Employees	<b>116,365</b>
	Nationalities	<b>141</b>
	Group fleet	<b>636</b>
	Passengers	<b>&gt; 100.6 million</b>
	Freight/mail	<b>&gt; 2.1 million t</b>

### North Atlantic

3,442 weekly frequencies to 126 destinations in two countries

### Europe

9,819 weekly frequencies to 171 destinations in 43 countries

### Africa

253 weekly frequencies to 51 destinations in 37 countries




**Frequencies and number of destinations**  
Lufthansa and Group airlines  
Lufthansa including codeshares

### South Atlantic

359 weekly frequencies to 32 destinations in 10 countries

## An “entirely normal” day at the Lufthansa Group


 We look after more than 1,000 aircraft.

 We take off and land 2,879 times.

 We take about 32,000 inquiries within the Service Center network.



 We carry about 275,000 passengers and more than 5,800 tonnes of freight.

 We provide more than 1.3 million meals for our customers.

Deutsche Lufthansa AG is an aviation group with worldwide operations that is structured into 400 subsidiaries and associated companies. It comprises five business segments in the areas of passenger transport, air freight and services for airlines: Passenger Airline Group, Logistics, MRO (maintenance, repair, overhaul), IT Services and Catering. [www.lufthansa.com/group](http://www.lufthansa.com/group)

### Jobs around the world

Europe	90,667
North and Central America	12,956
South America	3,093
Asia/Pacific	7,564
Africa/Middle East	2,085

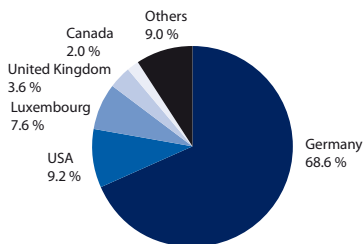
### Middle East

165 weekly frequencies to 16 destinations in 11 countries

### Asia/Pacific

786 weekly frequencies to 58 destinations in 19 countries

### Shareholder structure by nationalities



### The Lufthansa Group and its five business segments



#### Passenger Airline Group

The Group's airlines are among the leading carriers worldwide.



#### Logistics

Lufthansa Cargo – ranks among the market leaders in international air freight transport.

#### MRO

Lufthansa Technik – is the world's leading provider of technical aircraft services.

#### IT Services

Lufthansa Systems – has a worldwide leadership role in the aviation industry.

#### Catering

LSG Sky Chefs – the largest provider worldwide of services in airline catering and in-flight management.

\* equity investments see pages 13 and 14

# Business segment Passenger Airline Group

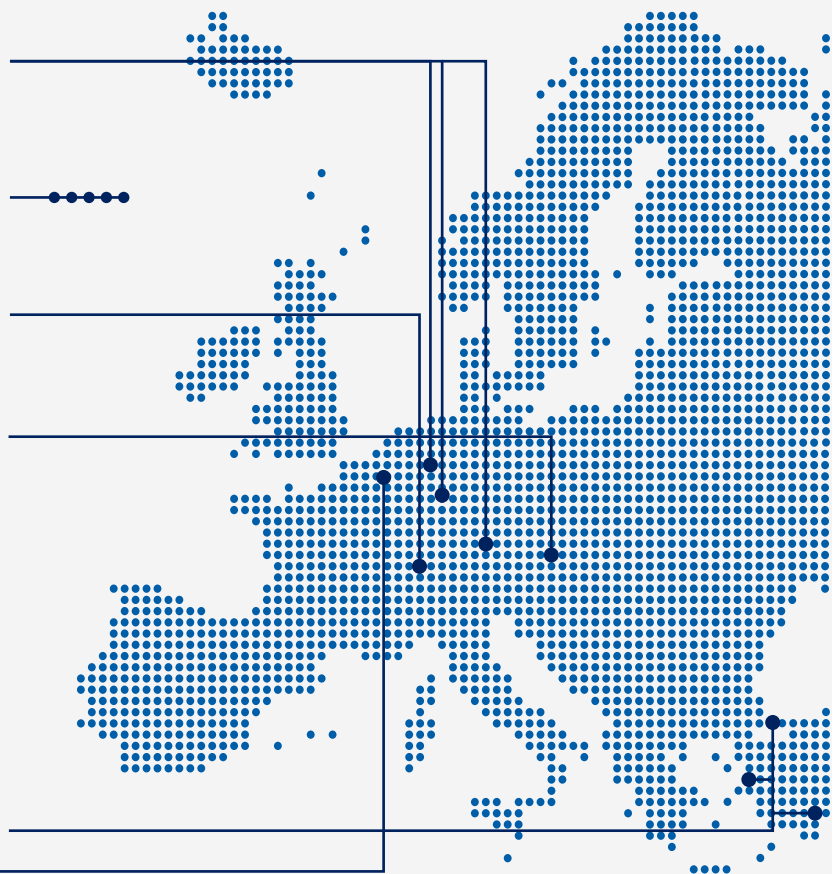
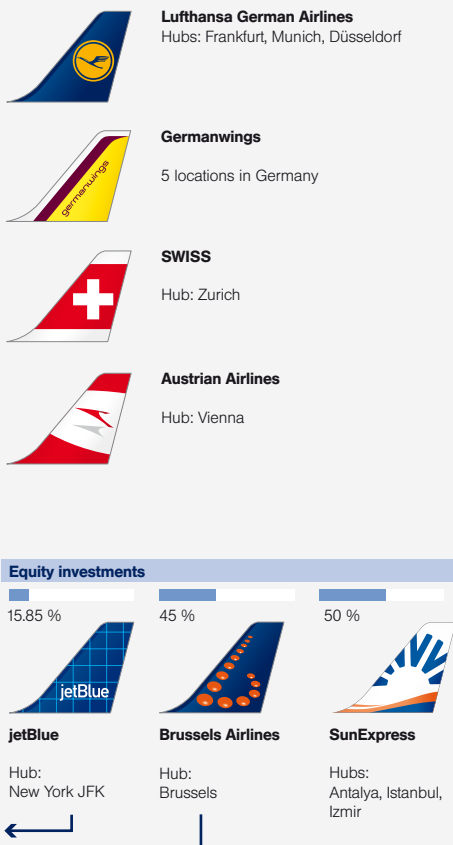
In the current airline and service system, the Passenger Airline Group represents the strategic business segment and the central point of the Group's portfolio. It comprises Lufthansa German Airlines (including Germanwings and the regional airlines), SWISS, Austrian Airlines, as well as the equity shares in Brussels Airlines, SunExpress and jetBlue Airways. The companies of the Passenger Airline Group have a top position in their respective segments and position themselves as quality carriers.

All companies in the Passenger Airline Group pursue the goal of profitable growth. This creates the conditions needed for investments in modern fleets, financial stability in a volatile industry and secure jobs with attractive perspectives for development. At the same time, the companies meet

their responsibility for the conservation of natural resources by applying the principles of sustainable development. The advancing harmonization of products and processes allows passengers seamless travel across the Group's network and thus provides significant added value.

A total of more than 100.6 million passengers chose to fly with the Group's airlines in 2011. In terms of the number of passengers carried, this is a new company record. In the summer timetable 2012, the airlines Lufthansa, SWISS, Austrian Airlines and Brussels Airlines offer together flights to 283 destinations in 105 countries on four continents from their hubs in Frankfurt, Munich, Düsseldorf, Zurich, Vienna and Brussels, and mutually complement their own flight offers with numerous codeshare flights.

## The airlines of the Passenger Airline Group and their hubs







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## Lufthansa German Airlines

In 2011, a total of 65.5 million passengers traveled with Lufthansa German Airlines. Thanks to a modern and high-quality product, a unique lounge concept and innovative services concerning all aspects of flying – such as the frequent flyer program Miles & More, the Lufthansa Star Chef Program and mobile services – Lufthansa German Airlines and its full range of products enjoy the highest recognition and renown worldwide. The key hubs of Lufthansa German Airlines are in Frankfurt and Munich. These are complemented by a local hub in Düsseldorf and Europe-wide direct connections.

In March 2012, Lufthansa German Airlines presented a new brand campaign. The fresh image – in conjunction with the new claim “Nonstop you” – is designed to strengthen Lufthansa’s leading role in the business travel segment while addressing leisure travelers more directly than before. Marketing communications will give perceptible emphasis to the latter area in particular to present the numerous product innovations and improved offers in new and effective ways.

In 2012, Lufthansa German Airlines will also begin a new chapter in serving the German capital Berlin. The local fleet will grow from nine to 15 aircraft and the route network will be expanded from currently eight to 39 destinations.

[www.lufthansa.com](http://www.lufthansa.com)



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Lufthansa Regional comprises:

 **Lufthansa CityLine**

 **Air Dolomiti**

 **eurowings**

 **Contact Air**

**Augsburg Airways**



In 2012, Lufthansa German Airlines significantly increases its connections to and from Berlin.



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## Germanwings

Germanwings is a fully-owned subsidiary of Deutsche Lufthansa AG and one of the most successful airlines in the low-cost segment. Founded in 2002, the company has its headquarters in Cologne and its home base at Cologne/Bonn Airport. Germanwings flies with modern Airbus A319s from its five locations in Cologne/Bonn, Stuttgart, Berlin, Hanover and Dortmund to more than 90 destinations on the European continent, in Israel and in North Africa. Germanwings and Group parent Lufthansa are set to work together even more closely in distribution as well: Since 20 January 2011, so-called interlining has been possible between the two airlines. In this manner, for example, an outbound flight on Lufthansa can be combined with a return flight on Germanwings in a reservation made by a travel agency or a Lufthansa sales office.

[www.germanwings.com](http://www.germanwings.com)



SWISS uses a new advertising image to raise its brand profile and to strengthen its positioning as Switzerland's national airline.

## SWISS

Swiss International Air Lines is part of Switzerland's tradition in civil aviation and the country's national airline. SWISS is a wholly-owned Lufthansa Group company. The stock corporation's headquarters is in Basel. SWISS connects Switzerland with the world from its hub in Zurich and airports in Basel, Geneva and Lugano. The airline has been a member of the Star Alliance since April 2006. Customers flying with SWISS enjoy personal care and the highest levels of product and service quality. Its manageable size allows SWISS to be close to its passengers and to give them individual care. With its modern products, SWISS positions itself in Economy as well as in Business and First Class as a quality airline and premium brand. The entire long-haul fleet has been equipped with an advanced type of Business Class since summer 2011. In the leisure travel segment, the leisure airline Edel-

weiss Air, which is consolidated within the SWISS Group, complements the portfolio of offers. As differentiation by means of an airline's brand is gaining importance in the mass market of flight services, SWISS has been applying a strengthening of its brand portfolio since October 2011. The aircraft tail with the Swiss cross as the new logo, the claim "Our sign is a promise" and a new advertising campaign embody the alignment with Swiss quality and customer orientation.

[www.swiss.com](http://www.swiss.com)

## Austrian Airlines

Austrian Airlines is a dynamic, quality-oriented group that comprises the brands Austrian Airlines, Lauda Air and Austrian arrows. It has been part of the Lufthansa Group since 3 September 2009. In Austria, its home market, Austrian Airlines represents a significant part of the national air transport market. This network carrier, which takes the role of market leader as the airline with the highest revenue, has made the growth area of central and eastern Europe one of its areas of specialization. With 44 destinations served, Austrian Airlines is the market leader there as well. The second area of emphasis is the Middle East. Austrian Airlines offers one of the densest networks in both regions. The central hub for all connections between east and west is Vienna, the airline's home airport. With more than 100 destinations, Austrian Airlines operates the largest route network in Europe offered from a single hub. The passengers of this renowned airline benefit from excellent service and the proverbial Austrian hospitality.

[www.austrian.com](http://www.austrian.com)



STAR ALLIANCE™



## Star Alliance

Lufthansa is a founding member of the Star Alliance – the world's leading airline network. Founded in 1997, the alliance currently consists of 25 airlines. Together, they offer more than 20,500 daily flights to 1,293 destinations in 190 countries.

[www.star-alliance.com](http://www.star-alliance.com)





#### **Brussels Airlines (equity share of 45 percent)**

Brussels Airlines is Belgium's largest airline. Since June 2009, Lufthansa has held an equity share of 45 percent in the company's parent, the holding company SN Airholding with headquarters in Brussels. Since 2011, Lufthansa has also held a purchase option for the remaining 55 percent of equity. Brussels Airlines joined the Star Alliance in December 2009. The company evolved from SN Brussels Airlines, which was founded in 2002 to succeed the Belgian national airline Sabena. From its hub in Brussels, the airline serves the most important European capitals and regions. Another area of emphasis in the route network of Brussels Airlines is flights to Africa.

[www.brusselsairlines.com](http://www.brusselsairlines.com)



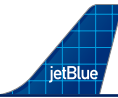
Brussels Airlines: With flights to 49 destinations in Europe and 21 cities in Africa, the airline offers an outstanding network for journeys from, to and via Brussels.



#### **SunExpress (equity share of 50 percent)**

A joint venture of Lufthansa and Turkish Airlines, SunExpress has developed with pronounced dynamism since its foundation in 1989. The airline has its headquarters in Antalya on Turkey's southern coast and currently offers more than 1,000 flights per week and is thus one of the market leaders in air traffic between Germany and Turkey. It operates a fleet of 28 Boeing 737-800s and employs more than 1,800 people. Besides connections to its three hubs Antalya, Izmir and Istanbul, SunExpress operates numerous non-stop flights from Germany to about a dozen Turkish cities and additionally offers numerous direct connections within Turkey. In 2011, the airline founded SunExpress Deutschland GmbH with headquarters in the Rhine-Main area. This subsidiary operates flights to destinations on the Red Sea and the Nile, in a move aimed to establish SunExpress as a specialist for Egypt in addition to Turkey. In 2011, the company set a new record by carrying 7.7 million passengers. In 2012, it announced a new commitment in the wet lease business. This new business segment is designed primarily to counterbalance the low season on European routes with the use of aircraft in the southern hemisphere.

[www.sunexpress.com](http://www.sunexpress.com)



#### **jetBlue Airways (equity share of 15.85 percent)**

jetBlue Airways is a U.S. passenger airline with headquarters in New York. It was founded in 1998 and started operations in 2000. Lufthansa holds a 15.85 percent equity share in jetBlue and is thus the first European airline to have made a significant investment in a U.S. airline. jetBlue's home base is at New York's John F. Kennedy Airport (JFK). From there, as well as from Boston, Fort Lauderdale, Los Angeles/Long Beach and Orlando, jetBlue operates the majority of its services to destinations in the United States, the Caribbean and Latin America.

[www.jetblue.com](http://www.jetblue.com)

#### **bmi**

Deutsche Lufthansa AG has completed the sale of British Midland Ltd. (bmi) to International Airlines Group (IAG). The completion of the sale took place after close of business on 19 April 2012. On 4 November 2011, Lufthansa and IAG agreed in principle to the sale of bmi to IAG, prior to a legally binding purchase agreement being signed by both parties on 22 December 2011. The validity of this contract was subject to regulatory approval by the European Commission, which was received on 30 March 2012. This transaction gives bmi a perspective for the future while strengthening the Lufthansa Group's future profitability. [www.flybmi.com](http://www.flybmi.com)

## Business segment Logistics / Lufthansa Cargo AG

Lufthansa Cargo AG is the provider of logistics services within the Lufthansa Group. It ranks among the market leaders in the international air freight



business and offers a worldwide network, the shortest transport times and high quality standards in many product areas, some of which are highly specialized. The emphasis of Lufthansa Cargo lies in the airport-to-airport freight business. The logistics specialist operates its own fleet of 18 Boeing MD-11F freighter aircraft and holds international equity shares, such as those in the cargo airlines AeroLogic (equity share of 50 percent) and Jade Cargo International (equity share of 25 percent). Lufthansa Cargo offers a comprehensive route net-

work with more than 300 destinations in about 100 countries, which is complemented by cooperations with other cargo airlines and air-freight-related partner companies, including SWISS WorldCargo and Air China Cargo. Customers benefit from the highest quality standards, short transport times and tailor-made logistics solutions. Lufthansa Cargo's product portfolio includes standard and express freight, along with special freight as a significant cornerstone. The latter includes the transport of live animals, valuable cargo, mail, hazardous goods and temperature-sensitive goods. The main transfer point is Frankfurt Airport; other important hubs are Munich and Vienna. There are also close ties to the Group companies SWISS and Brussels Airlines. With its strategy "Lufthansa Cargo 2020" the freight airline has defined the cornerstones for profitable growth over the years ahead. The goals are to continue to take part in the growing market of air cargo, to simplify and optimize processes, and to realize unit cost reductions. To implement the planned growth, Lufthansa Cargo ordered five new Boeing 777 freighters in 2011, for delivery between 2013 and 2015. Lufthansa Cargo has its headquarters in Frankfurt. [www.lufthansa-cargo.com](http://www.lufthansa-cargo.com)

## Business segment MRO / Lufthansa Technik AG

Lufthansa Technik AG is the world's leading provider of technical aircraft services. The emphasis is on the manufacturer-independent maintenance



and overhaul of civil aircraft and the repair of engines, electrical equipment and components (Maintenance, Repair and Overhaul, MRO). Worldwide, Lufthansa Technik attends to about 770 customers, which include mostly airlines and operators of VIP jets but also aircraft leasing companies. Within the Lufthansa Group, Lufthansa Technik is responsible for the safety, reliability and value retention of the fleet. Lufthansa Technik comprises six product divisions: maintenance,

aircraft overhauls, engines, components, landing gear and VIP aircraft services. Its MRO network unites 32 technical maintenance operations worldwide. The company has direct and indirect participations in 56 corporations. Hamburg is the most important location for Lufthansa Technik's maintenance operations, bundling aircraft overhaul services, cabin completion for VIP aircraft, engine and component maintenance, the logistics center, and the design and production facility. The largest maintenance stations are in Frankfurt and Munich; additional stations are located at all larger German airports and about 50 other locations worldwide. The MRO service provider is currently expanding its market presence in Germany by building an aircraft maintenance hangar at the new Berlin Brandenburg International Airport. In Asia, Lufthansa Technik has maintenance operations in four countries; among these are Lufthansa Technik Philippines, Lufthansa Technik Shenzhen, Lufthansa Technik Services India and Ameco Beijing. The headquarters of Lufthansa Technik AG is in Hamburg. [www.lufthansa-technik.com](http://www.lufthansa-technik.com)





## Business segment IT Services /Lufthansa Systems AG

Lufthansa Systems offers consulting and IT services for selected industries and has a worldwide leadership role in the aviation industry. With its comprehensive portfolio, Lufthansa Systems covers the entire spectrum of IT services, ranging from consulting to the development and implementation of tailor-made industry solutions and the operation of these innovative systems in its own data centers. In their work, the experts of Lufthansa Systems combine many years of project experience with comprehensive technological know-how, profound industry knowledge and proven expertise in analyzing complex business processes. Given the high level of complexity of IT projects, project management has a key role in keeping implementations on schedule and within budget. As a certified SAP partner, Lufthansa Systems also covers the entire service range for SAP systems, from design and adaptation to implementation, consolidation and maintenance. The products and services provided by Lufthansa Systems allow companies to increase their efficiency, reduce their costs and raise their revenues over the long term. Worldwide, more than 200 airlines – as well as compa-

nies in such industries as transport and logistics, manufacturing, media and publishing, energy and health care – rely on the exper-



tise of Lufthansa Systems. The company has its headquarters in Kelsterbach near Frankfurt. In addition, Lufthansa Systems also maintains branch offices in Germany as well as at locations in 16 countries.

[www.LHsystems.com](http://www.LHsystems.com)

## Business segment Catering /LSG Sky Chefs

LSG Sky Chefs is the world's largest provider of airline catering and the management of all processes related to in-flight service. The Group comprises 148 companies at 200 locations in 52 countries. In 2011, this wholly-owned Lufthansa subsidiary produced 490 million in-flight meals for more than 300 airlines worldwide – including nearly all international as well as numerous national and regional carriers, network carriers, charter companies and low-cost airlines. The Group's parent company, LSG Lufthansa Service Holding AG, has its headquarters in Neu-Isenburg near Frankfurt. In the area of airline catering, LSG Sky Chefs offers a complete range from premium meals produced to order all the way to cost-efficient snacks. Based on its far-reaching experience, the Group has developed tried-and-tested methods which ensure that customers always receive first-rate quality. Further performance parameters are culinary excellence and innovation, authentic regional cuisines from the airline's international network, and an innovative and appealing menu design. Beyond that, the company offers a broad range of in-flight prod-

ucts and services at the highest level of quality and reliability. Additionally, the Group has begun to open up associated markets such as railway



and school catering as well as catering in the health care and retail sectors.

[www.lsgskychefs.com](http://www.lsgskychefs.com)

# Corporate responsibility

## Sustainability and responsibility

Corporate responsibility, that is to say sustainable and responsible entrepreneurial practice, has been firmly anchored in the Group's corporate culture and in its corporate strategy for many years. It is an important element in securing the Group's viability in the future. The Lufthansa Group not only pays attention to applying sustainable business practices and growing by creating added value, but also places great emphasis on continuously improving climate and environmental care, treating employees responsibly and fairly, and carrying out its commitment to the good of society.

### Five dimensions of corporate responsibility

To grasp corporate responsibility in all its dimensions and to make it tangible, Lufthansa developed a model that comprises the following topic areas: economic sustainability, social responsibility, climate and environmental responsibility, corporate governance and compliance, and corporate citizenship (see illustration at right). In this context, sustainable business practices represent a fundamental prerequisite for responsible action. This does not mean, however, that the other four dimensions of entrepreneurial responsibility can be regarded as secondary, a point emphasized by Sadiq Gillani, Senior Vice President Group Strategy at Deutsche Lufthansa AG (see interview on page 19). These areas of activity also have significant influence on economic sustainability and thus on the Lufthansa Group's future viability.

### Corporate Responsibility Council sets the framework

In his role as Senior Vice President Group Strategy, Sadiq Gillani also manages the interdisciplinary and interdepartmental Corporate Responsibility Council (CRC). Situated at the upper management level, this committee provides the fundamental framework for steering

and controlling the processes related to sustainability at the Lufthansa Group. Apart from the Senior Vice President Group Strategy, the CRC's members include the heads of the Group departments in charge of political issues, environmental issues, human resources, legal issues, communications, investor relations and controlling. In addition, the CRC consults with the Group department Corporate Sourcing to ensure that the topic of sustainability is sufficiently taken into account throughout the supply chains as well. The activities and projects decided by the CRC are subsequently implemented by the specialized departments.

Communication with internal and external audiences has an important function in this context. Since 1994, *Balance* has informed all of the Group's stakeholder groups in an open and constructive manner about issues concerning corporate responsibility. Launched 18 years ago as a pure environmental report, *Balance* has long since covered all important aspects of sustainability with regard to the Group's companies and airlines.

### Highlights 2012

For an overview of the successful activities in the area of corporate responsibility within the Lufthansa Group during the reporting year, please see pages 20 and 21. The scope encompasses such topics as the starting signal for the new climate research project IAGOS, the long-term testing of biofuel, the commitment to noise reduction and aid flights by Lufthansa Cargo.



"Attractive products and offers are, of course, the fundamental condition for success in the market. But responsible business practices within the overall societal context and a dialogue about this with different stakeholder groups are just as indispensable. The Corporate Responsibility Council gives the Group a clear orientation in this area."

Astrid Messmer Rodriguez  
Director Segment Strategy and coordinator of the Corporate Responsibility Council, Deutsche Lufthansa AG



# The five dimensions of corporate responsibility at the Lufthansa Group





### Award for responsible corporate management

Independently of these corporate activities, a number of external experts and agencies evaluated the practices of the Lufthansa Group again in 2011 under the aspect of responsible conduct. As a result, the aviation company once more achieved representation in several sustainability indexes, such as FTSE4Good, ASPI (Advanced Sustainable Performance Indices) and ESI (Ethibel Sustainability Index). In the corporate rating by the agency "oekom" in 2011, Lufthansa achieved "Prime Status," which is awarded to companies with particularly sustainable and responsible practices. The Group also managed to achieve a significantly better rating in the Carbon Disclosure Project (CDP) compared with its result the year before.

In contrast, Lufthansa was not able to reestablish membership in the Dow Jones Sustainability Index (DJSI) under the ever-stricter conditions. The analysts identified further optimization potentials in the area of operational eco-efficiency, which focuses primarily on emissions and the consumption of fuel, energy and water. However, the results in the areas of economic efficiency, risk management and crisis management were significantly improved. Lufthansa's management treats the results of such surveys and ratings conscientiously and deduces from them the need for appropriate action within the company. Beyond this, Lufthansa is committed to the Principles of the UN Global Compact and supports its activities.



### Principles of the UN Global Compact

The UN Global Compact is a worldwide initiative that was set up by the former UN Secretary-General Kofi Annan in 2000. The compact between companies and the United Nations has the goal of making globalization socially and environmentally compatible, and it obliges the participating companies to adhere to social and ecological minimum standards, to respect human rights and to fight against corruption. Deutsche Lufthansa AG has been a member since 2002.

#### 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](http://www.unglobalcompact.org)





## Interview with Sadiq Gillani

Senior Vice President Group Strategy at Deutsche Lufthansa AG



### **Mr. Gillani, what is the importance of corporate responsibility at the Lufthansa Group?**

For us, corporate responsibility is an important criterion for securing the Lufthansa Group's future viability in an extremely competitive market environment. We are committed to sustainable development and assume our ecological, civic and social responsibilities. We also document this claim in our Mission Statement.

### **Could you give some concrete examples?**

Our future-oriented approach to value-oriented corporate management lets us keep a firm eye on economic sustainability. This puts us in a position to assume climate and environmental responsibility in a proactive manner. For example, we continued our investments in a modern, more efficient and quieter fleet in 2011 as well. Here, economy and ecology go hand in hand. But new, eco-efficient aircraft cost money. We can afford them only thanks to our financial foundations, which are stable over the long term. In addition, our strong commitment to biokerosene illustrates impressively that we do our utmost to accelerate the development of sustainably produced alternative fuel for aviation.

### **In which areas does the company need to catch up?**

We need to react even more quickly and flexibly to the challenges of a constantly changing competitive environment and to do everything we can to secure the Lufthansa Group's economic sustainability in the future as well. The corporate program SCORE supports us in this quest by increasing our competitiveness. Because only with financial strength can the Lufthansa Group invest and grow in a sustainable manner.

### **Is SCORE limited to increasing economic sustainability? Are the other pillars of corporate responsibility secondary?**

Economic sustainability is an integral part of our strategy and a basic requirement for responsible corporate management, which also includes social and ecological responsibility. So in the final analysis, SCORE helps to finance corporate responsibility as a whole. SCORE doesn't compete with that. I'm convinced that our highly qualified and motivated employees will master this challenge too. The employees' importance in reaching our goal itself illustrates that we cannot treat the other dimensions of corporate responsibility as secondary, as in the end they all also have an influence on the economic sustainability and thus on the future viability of the Lufthansa Group.

# Corporate responsibility – Highlights



3 January 2011

## Personnel reinforcement in the air and on the ground

Lufthansa announces it will hire 4,000 new employees in the operational areas in Germany.



24 February 2011

## Commitment to less noise

Lufthansa starts modifying the engines of the Boeing 737 fleet stationed in Frankfurt with new acoustic panels. See page 86



1 March 2011

## Cargo Climate Care Conference

Lufthansa Cargo organizes the second Cargo Climate Care Conference in Frankfurt and presents the eponymous environmental award.

23 March 2011

## Lufthansa Cargo aid flight to Japan

After the devastating earthquake in Japan, Lufthansa Cargo transports 70 tonnes of aid supplies to Tokyo free of charge. See page 92



19 April 2011

## Austrian Airlines concludes refitting its Boeing 767 fleet with winglets

The new winglets help the airline save fuel and thus avoid emissions.



13 May 2011

## 27<sup>th</sup> Lufthansa Festival of Baroque Music in London

The festival steeped in tradition delighted the public and media alike with 12 concerts. See page 100

19 May 2011

## Balance 2011 is published

Christoph Franz, Chairman of the Executive Board and CEO of Deutsche Lufthansa AG, presents the Sustainability Report of the Lufthansa Group at a press conference.



7 July 2011

## Starting signal given for new climate research project IAGOS

Lufthansa launches another research project to observe the Earth's atmosphere long-term in cooperation with Research Center Jülich. See page 89

11 July 2011

## New lightweight containers

Lufthansa and Lufthansa Cargo will introduce loading containers made from lightweight composite materials by 2015, which saves fuel and avoids emissions. See page 73

15 July 2011

## Start of the long-term trial of biofuel

For the first time, Lufthansa uses biofuel on daily flights between Hamburg and Frankfurt. See page 67

19 May 2011

## New service trolleys reduce fuel consumption

Lufthansa announces the replacement of its onboard trolleys with lighter model "Quantum Light Weight Trolley" by 2014.



6 October 2011

## First expert round for humanitarian logistics in Frankfurt

Lufthansa Cargo organizes expert round to improve understanding of the needs of international aid organizations. See page 92

17 October 2011

## More women in management positions

The Lufthansa Group sets itself the goal of increasing the share of women in management positions by 30 percent by 2020. See page 46



21 November 2011

## SWISS WorldCargo counts on lightweight containers

The freight division of SWISS will replace its aluminum containers with a more lightweight version by 2015.

21 to 23 November 2011

## Finale of university competition "Lufthansa Case Challenge"

Lufthansa and EBS Business School organize an international competition on the subject of sustainability. See page 25

22 November 2011

## Presentation of the UNEP/CMS Thesis Award endowed by Lufthansa

For the third time, this thesis award, which offers prize money of 10,000 euros, was given to a young scientist. See page 99

29 August 2011

**Start of the pilot project for inductive recharging of an electric car at Frankfurt Airport**

Lufthansa Technik operates an electric car at Frankfurt Airport to test e-mobility and the contact-free recharging technology. See page 82

17 August 2011

**Lufthansa Cargo aid flight to East Africa**

Lufthansa Cargo carries 90 tonnes of aid supplies to Nairobi, Kenya. See page 92

16 September 2011

**Lufthansa receives award for its commitment to biofuel**

In the framework of the Clean Tech Media Award 2011, Lufthansa receives a special prize for its biofuel project burnFAIR. See page 68

25 September 2011

**Jubilee sightseeing flights for a good cause**

To celebrate Hamburg Airport's 100<sup>th</sup> anniversary, Lufthansa offers two sightseeing flights with an Airbus A380 and donates the proceeds of 50,000 euros to two charitable organizations. See page 95

December 2011

**Lufthansa Cargo receives recertification for its environmental management system**

The environmental management system of Lufthansa Cargo is recertified according to ISO 14001 at all German stations. See page 80

December 2011

**Test run with electric taxiing power for aircraft on the ground (eTaxi)**

For the first time, Lufthansa Technik installs electric motors on the main landing gear of a civil aircraft to test the suitability of this environmentally friendly propulsion system. See page 82

1 September 2011

**"Small change – It's a big help": Brussels Airlines now also collects donations for the HelpAlliance**

On its long-haul flights, Brussels Airlines now also participates in collecting remaining amounts of foreign currency for the employees' aid organization HelpAlliance.

1 September 2011

**Lufthansa Group receives award for its commitment to sustainability**

Lufthansa receives the Condé Nast Traveler World Savers Award 2011 in the category "Doing it all."

12 January 2012

**First scheduled transatlantic flight with biofuel to the United States**

For the first time, a Lufthansa Boeing 747-400 with about 40 tonnes of a biofuel mix in its tanks flies from Frankfurt to Washington D.C.

December 2011

**LZ Catering receives Ökoprofit certificate**

LZ Catering has taken part in the Ökoprofit project in Hamburg. See page 81

2 February 2012

**Lufthansa extends partnership with Deutsche Sporthilfe (German Sports Aid)**

Lufthansa remains a National Sponsor of Deutsche Sporthilfe for the next four years. See page 103

6 February 2012

**Presentation of the project "Management Landscape 2020" ("FK 2020")**

FK 2020 is the foundation on which the Lufthansa Group intends to increase diversity at its higher management levels. See page 46

# Stakeholder dialogue

## Open exchange creates trust

Entrepreneurial activities are subject to social acceptance. This is also true for the Lufthansa Group, whose business activities touch upon the interests of many stakeholder groups – such as customers and employees, investors, analysts, lawmakers, neighbors and municipalities as well as researchers and educators.

The company seeks an active exchange with its stakeholders and incorporates their experiences, wishes and expectations in its strategic actions. A selection of examples from 2011:



### Lufthansa Systems' Airline Forum

"Think easy" was the motto for the Airline Forum attended by 350 representatives of about 90 airlines from 13 to 15 September 2011 at the Lufthansa Training & Conference Center in Seeheim. The global network and innovation platform of Lufthansa Systems offered an overview of current trends and novelties in the area of information technology for airlines. The focus of the numerous lectures, product presentations and workshops was on modern IT solutions that allow companies to simplify their processes and reduce their costs.

### Lufthansa Technik: 14<sup>th</sup> Customer Community Conference and Customer Satisfaction Survey

All topics focused on "Innovations and Customer Care" at Lufthansa Technik's 14<sup>th</sup> Customer Community Conference in Hamburg. The event was attended in 2011 by about 80 customer representatives from around the world. Eight speakers presented innovations within the company – such as the successful long-term testing of bio-fuel at Lufthansa or the challenges and solutions regarding technical support for the latest-generation aircraft.

Furthermore, Lufthansa Technik surveyed 300 representatives of 160 airlines concerning their satisfaction with the company's services. The customer satisfaction survey conducted in 2011 awarded the maintenance specialist top marks for its broad product portfolio, its worldwide network and the professional competence of its employees. As areas for improvement, the participating customers identified among others the flexibility of business processes.

### International innovation competition at Lufthansa Cargo

Lufthansa Cargo is convinced that investments in environmental innovations pay off. For this reason, the logistics service provider included the category "Green Solutions" in its first-ever international innovation competition "Open Innovation

## Passengers / customers

### International passenger surveys

Lufthansa has been measuring passenger satisfaction continuously since 2001. These surveys show which performance elements generate the highest degree of satisfaction among passengers. They also allow insights into how passenger needs could be met even better in the future. The satisfaction values recorded are also used to calculate the so-called Customer Profile Index. It documents how the passengers, or specific passenger segments, perceive quality.

In addition, Lufthansa cooperates with renowned market research institutes to conduct regular studies at the international level concerning the company's brand positioning. In 2011, the company also conducted an online survey among Lufthansa Miles & More customers concerning the airline's long-term testing of biofuel (see "On track for the air transport of the future" on page 67).



Challenge” and asked its stakeholders to submit appropriate ideas (see “Environmental management” on page 80). In addition, Lufthansa Cargo organized its second “Cargo Climate Care Conference” on 1 March 2011 in Frankfurt to discuss innovative solutions for the long-term improvement of the logistics industry’s climate balance sheet. More than 200 representatives from the logistics and aviation industries participated in the fully-booked event (see *Balance 2011* on page 25).

### **Logistics specialist opens new visitor center in Frankfurt**

The logistics service provider also opened a new visitor center at Gateway 25 of Frankfurt Airport. The Lufthansa Cargo Visitor Center features a high-quality, modern atmosphere and provides space for up to 50 people. Information graphs and display cases offer insights into the world of air freight as well as into the company’s history and current activities. On 18 May 2011, Karl Ulrich Garnadt, Chairman of the Executive Board and CEO of Lufthansa Cargo, officially inaugurated the building, which will also be used for internal events.

### **Lufthansa Visitors’ Service organizes guided theme tours**

At the locations in Frankfurt and Hamburg, the Lufthansa Visitors’ Service offers the opportunity to obtain detailed information about the Lufthansa Group and to engage in an in-depth dialogue. The offer specifically addresses national and international top customers from different industries as well as university graduates, people living near airports and representatives of associations and research institutions. In 2011, about 7,800 interested visitors took advantage of this dialogue offer in Frankfurt by taking part in tours on a range of subjects. One of the main attractions – apart from sustainability topics – was the Airbus A380. The aircraft naming ceremonies in Vienna and Zurich drew lively demand from visitors for the chance to get acquainted with the new Lufthansa flagship under the guidance of an expert team.

While 650 guided tours took place in Frankfurt, there were 633 tours with some 13,000 visitors in Hamburg. Moreover, Lufthansa organized a competition among its top customers in early 2012 to help find the Visitors’ Service a new name that would be more fitting for the activities it offers. The final winner was “Discover Lufthansa.” It will be used in all of the institution’s publications as

well as in its e-mail address. Visitors’ services are also offered by the Group airlines SWISS and Austrian Airlines at their respective hubs in Zurich and Vienna.

## **Investors / analysts**

### **Members of Lufthansa’s Executive Board answer investors’ questions**

In 2011, the members of Lufthansa’s Executive Board again responded directly to questions from investors and analysts. The platform for this direct form of exchange with management is the annual “Investor Day,” which most recently took place on 21 September 2011 in Zurich. The event offers comprehensive background information on topics such as the Group’s strategic orientation and the development of individual business segments. In addition, investors gained insights into the passenger business, the interplay of hubs as well as the positioning and development of the cargo business.

With the goal of informing institutional investors in a quick, detailed and factual manner beyond the quarterly conferences, the Executive Board and Investor Relations team held 39 road shows and 11 investor conferences in 2011. These events were complemented by more than 300 one-on-one and group meetings. In addition to its Annual Report and three Interim Reports, the Group publishes “Investor Info,” which provides details about the monthly traffic figures of the flying companies and other news from the Lufthansa Group. Forums for private investors and the publication “Shareholder information” complete the dialogue offers for the capital markets.



The online portal [www.lufthansa.com/investor-relations](http://www.lufthansa.com/investor-relations) offers access to numerous presentations, performance indicators and financial publications of the Lufthansa Group.



# Employees

## Dialogue events and decentralized Town Meetings

The Lufthansa Group regularly organizes dialogue events to find out more about the expectations, wishes and needs of its employees, especially those with customer contact. Decentralized Town Meetings at many locations are the platform for direct exchanges between members of the Executive Board and employees. For example, Christoph Franz, Chairman of the Executive Board and CEO of Deutsche Lufthansa AG, took advantage of this framework on 28 November 2011 to present the Lufthansa Group's new strategy to employees of SWISS and Austrian Airlines.

## "Product & Marketing Village 2011" for employees of Lufthansa German Airlines

In their role as active product designers and brand ambassadors, Lufthansa employees have a significant influence on the way in which passengers experience their journeys with Lufthansa German Airlines. As part of the endeavors to turn passengers into fans, the two-day "Product & Marketing Village 2011" took place during the reporting year. This event gave about 450 employees from the product and marketing areas an opportunity to capture the varied world of Lufthansa products and services with all their senses. Numerous interactive topic stands made it possible to experience products such as the world of Lufthansa Lounges or the new First Class seats aboard the Boeing 747-400.

Moreover, the company management uses various internal print and online media to communicate with the Group's employees. These include not only the staff newspaper "Lufthanseat" but

also the magazine "Lufthansa Passage" for ground, cabin and cockpit personnel as well as the company intranet with its platform eTeaming.

## Employee surveys produce important descriptions of moods

For many years, Lufthansa has used employee surveys as an instrument to assess staff members' satisfaction with their tasks, work environment, continuing education offers, and communication with supervisors and company management. In 2011, the Employee Feedback Management (EFM) took place for the seventh time – and was concluded with record participation. Beyond that, the initiative "Great Place to Work®" gave employees of Lufthansa Technik, Lufthansa Technik Logistik, Lufthansa Technik Maintenance International and Lufthansa LEOS an opportunity to give upper-level managers feedback concerning their leadership qualities (see info box on page 56).

## Government, lawmakers, politics, public administrations

Lufthansa maintains an intensive and continuous dialogue with representatives of Germany's federal and state governments. On the international level as well, the Group takes a stand on legal and regulatory guidelines, and makes its practice-based knowledge available.

## Neighbors / municipalities

Promoting trust and creating understanding – that is the focal point for the dialogue between Lufthansa and mayors and administrations of municipalities surrounding airports. Key topics in this context are the economic perspectives offered by the aviation company, for example at the Frankfurt location, as well as related concerns about noise protection and the quality of life. Pursuing the goal of achieving a long-term balance of interests, the Group maintains a continuous dialogue with mayors and representatives of neighboring municipalities at other large company locations as well.



Numerous SWISS employees took part in the Town Meeting held on 28 November 2011 in Zurich.





### Rally “Ja zu FRA!” on Römerberg in Frankfurt

It is important for Lufthansa to help make the debate about the expansion of Frankfurt Airport (FRA) as balanced as possible. To promote a factual and differentiated debate about the pros and cons of the expansion of Lufthansa's home hub, the company, together with Fraport and Condor, created the initiative “Ja zu FRA!” (“Yes to FRA!”) at the beginning of 2012 and invited supporters to join a rally on Frankfurt's Römerberg on 1 March. As one of the world's leading passenger and cargo hubs, Frankfurt Airport currently offers jobs for about 71,000 people at about 500 companies (see page 43).



On 1 March 2012, Christoph Franz, Chairman of the Executive Board and CEO of Deutsche Lufthansa AG (2<sup>nd</sup> from left), and the chairmen of the executive boards of Condor, Lufthansa Cargo and Fraport explained in depth the importance of Frankfurt Airport for the Rhine-Main region and beyond that for the entire German economy.

## Research / education

As a contribution to social progress, Lufthansa has taken on an active role in numerous research projects. The airline cooperates closely with renowned scientific institutions and research institutes; their joint activities focus on issues related to climate protection, the reduction of noise and pollutant emissions, and the testing of alternative fuels. Additionally, the company maintains an ongoing dialogue with other airlines. Moreover, the starting signal for the new climate research project IAGOS was given in July 2011. The goal of the long-term observation campaign by Lufthansa and Research Center Jülich is to examine the Earth's atmosphere for atmospheric trace substances, aerosols and cloud particles with instruments carried aboard a Lufthansa Airbus A340-300 on its worldwide flights (see “Under development: Worldwide measuring infrastructure for climate research” on page 89). In 2011, Lufthansa also successfully concluded nearly six months of testing the use of biofuel in regular flight operations (“Long-term trial of biofuel – On track for the air transport of the future” on page 67). Furthermore, the Group and its partners launched the new noise project MODAL. It will make a significant contribution to the standardization process for the planned German standard DIN 45689 “Determination of aircraft noise exposure at airports” (see “Great commitment to less noise” on page 85).

### International competition “Lufthansa Case Challenge”

The cooperation with universities is an important element in the stakeholder dialogue of the Lufthansa Group. In 2011, for example, the Group – in cooperation with the Aviation Management Institute at the EBS European Business School – organized the second edition of the “Lufthansa Case Challenge.” A total of 189 teams from more than 25 countries participated in this academic competition for undergraduate and graduate students. The contest,

which focused this time on the topic of sustainability, aims at gaining impulses from university students for issues encountered in daily practice. The six teams presenting the most innovative concepts made it to the finals and had the opportunity to present their solutions to a jury of Lufthansa top managers and EBS experts.



# The Lufthansa Group fleet

## Planning for sustainability: 168 new aircraft by 2018

The Lufthansa Group counts on a modern and efficient fleet. This requires continuous investments both in optimizing the existing fleet and in purchasing new aircraft. When acquiring new aircraft, the Group applies stringent criteria: Aside from passenger comfort, low consumption and noise values are especially important factors.

On 31 December 2011, the Lufthansa Group fleet comprised a total of 636 aircraft. This includes the aircraft of Lufthansa German Airlines, SWISS, Austrian Airlines, the regional partners Lufthansa CityLine, Air Dolomiti, Eurowings as well as Germanwings and Lufthansa Cargo. By 2018, the Group will take delivery of 168 new aircraft with an order value of about 17 billion euros (at list prices). "These new aircraft represent an investment in the future for us. Not only do we modernize and expand our Group fleet, but we also align the fleet optimally with future demand levels," explains Nico Buchholz, Executive Vice President Group Fleet Management at Deutsche Lufthansa AG.

The noise emissions of the aircraft on order are significantly below those of comparable predecessor models. In this manner, the Airbus A380, the Boeing 747-8 Intercontinental, the CSeries by Bombardier and the Airbus A320neo reduce noise levels or noise footprints by double-digit percentage values. With this addition of the most advanced aircraft, the Lufthansa Group can grow further and at the same time fly in a more economical and environmentally friendly manner. Significant investment volumes based on the latest technological advances allow the Group a sustainable, targeted planning. The fleet modernization at a glance:



"These new aircraft represent an investment in the future for us. Not only do we modernize and expand our Group fleet, but we also align the fleet optimally with future demand levels."

Nico Buchholz  
Executive Vice President Group Fleet Management  
Deutsche Lufthansa AG

## Lufthansa German Airlines

### Commissioning the Boeing 747-8

Lufthansa German Airlines is set to achieve further successes in the area of fuel efficiency by operating the new Boeing 747-8 Intercontinental. At the same time, this is a highly economic aircraft in terms of capacity, range and operating costs. Lufthansa has placed orders for 20 Boeing 747-8s, which will be delivered between spring 2012 and mid-2015 and will complement the Group fleet perfectly between the Airbus A340-600 and the Airbus A380. In Lufthansa's configuration, it will offer seats for 362 passengers. Moreover, as a member of the 747 family, it can be easily integrated into the existing infrastructure at more than 200 airports around the world.

The Boeing 747-8 reaches new dimensions particularly with regard to sustainability aspects and environmental efficiency. Among other features, the newly designed wings with an advanced profile and curved wingtips, the so-called raked wingtips, create aerodynamic advantages. Likewise newly developed, the General Electric GENx-2B67 engines consume less fuel, emit lower levels of pollutants and allow for reduced noise emissions. The Boeing 747-8 is about 15 percent more fuel-efficient than the 747-400 and produces correspondingly lower levels of emissions. In addition, its noise footprint is 30 percent smaller than that of its predecessor. The 747-8 lies 15.6 decibels below the strict Chapter-4 noise limits of the International Civil Aviation Organization (ICAO), which have applied to new aircraft since 2006.

With a total length of 76.3 meters, the Boeing 747-8 is not only the world's longest passenger aircraft but also one of the most modern. In constructing the aircraft, the manufacturer has used new aluminum alloys and compound materials that are more lightweight and durable than previously used materials. Furthermore, there are numerous innovations aboard the aircraft, some of which come from the cabin of the 787 Dream-





# Lufthansa Boeing 747-8 Intercontinental: Larger, quieter, more environmentally friendly

Newly developed wings offer aerodynamic advantages.

Lufthansa is the “launch customer” of the Boeing 747-8 and has 20 aircraft on order.

Raked wingtips instead of winglets

15% more fuel efficient than the Boeing 747-400

New aluminum alloys

Noise footprint is 30% smaller than that of the Boeing 747-400

<b>Length</b>	<b>Fuel capacity</b>
76.3 m	242,000 liters
<b>Wingspan</b>	<b>Cruising speed</b>
68.7 m	Mach 0.85
<b>Height</b>	<b>Maximum takeoff weight</b>
19.4 m	442 tonnes
<b>Wing area</b>	
554 m <sup>2</sup>	

Newly developed engines (GENx-2B67): lower fuel burn, lower emissions and lower noise profile than any previous engine

liner. With its upward curve, the cabin’s architecture gives passengers a more pleasant feeling of roominess, more comfort and more space for carry-on luggage. Lufthansa is also setting high standards again with its new Business Class, which will make its debut aboard the Boeing 747-8. [www.lufthansa.com/747](http://www.lufthansa.com/747)

### 37 aircraft ordered in 2011

In 2011, the Group ordered a total of 37 aircraft for Lufthansa German Airlines: 25 Airbus A320neos and five Airbus A321neos in March; and two Airbus A380s, one Airbus A330-300 and four Airbus A320s in September. “Until new aircraft technologies become more reliably available, this moderate expansion of the Lufthansa fleet serves above all to secure the short-term requirements for modernizing and consolidating the European fleet. It is our objective always to operate a modern fleet when it comes to fuel efficiency, operating costs, noise and emissions,” explains Nico Buchholz. “At the same time, our supplementary order for the Airbus A380 and A330 secures our mid-term development on long-haul routes. In connection with the aircraft

already on order, which will be integrated into the fleet over the years ahead, we now have even more options for reacting in a targeted and flexible manner to swings in demand or changes in the markets.” In the course of 2011, Lufthansa German Airlines received three further Airbus A380s and now operates eight aircraft of this type. Two more deliveries are planned for 2012.

### Airbus A320neo and A321neo in operation from 2015

The Airbus A320neo and A321neo will join the fleet starting in 2015 and will operate on continental routes. These aircraft distinguish themselves mainly through improved aerodynamics and new engines, and consume up to 15 percent less fuel than current comparable models, such as the A320. In addition, the noise measurements in the context of the certification of these aircraft are expected to show significantly lower values than for predecessor models. This again represents important progress with regard to noise reduction efforts.



The Airbus A320neo that Lufthansa has on order consume up to 15 percent less fuel than the previous A320 model, thanks to improved aerodynamics and new engines.

The A320neo will feature so-called sharklets, or airflow-optimized wingtips, as standard equipment. A little over 2.5 meters high, these new wingtips replace advantageously those used thus far. Airbus promises fuel savings of up to five percent through the use of these sharklets. Moreover, aircraft equipped with this new type of wingtip can perform steeper climbs and thus reduce noise on the ground. "The order for the A320neo reflects our demand for technically and economically sustainable solutions. In the context of our fleet modernization, these aircraft will consume 12 to 15 percent less fuel than our current A320s, and they will be good neighbors thanks to a significantly reduced noise footprint. As a result of shared efforts to convince the manufacturers, we will be one of the first airlines to receive these aircraft from 2015," summarizes Nico Buchholz.

## Lufthansa Regional

### Five more Embraer 195s for regional traffic

In March, Lufthansa ordered five additional Embraer 195s for Lufthansa Regional. These advanced, economic and fuel-efficient aircraft produced by the Brazilian manufacturer Embraer will be delivered to the Group starting in 2012. Their fuel consumption – extremely low for a regional aircraft at a maximum of 3.9 liters of kerosene per 100 passenger kilometers depending on distance and payload – demonstrates just how environmentally compatible the Embraer 195 is. The emissions values for this type of aircraft are also correspondingly low. Furthermore, the Embraer 195 is characterized by low noise emissions. This type of aircraft is operated by Lufthansa CityLine as well as by the regional partners Augsburg Airways and Air Dolomiti.

### Firm orders placed by the Lufthansa Group, delivery period 2012-2018

As per 31.12.2011

Fleet orders	delivery period
<b>Long-haul fleet</b>	
9 Airbus A380s	2012 to 2015
20 Boeing 747-8s	2012 to 2015
5 Boeing 777Fs	2013 to 2015 (LH Cargo)
4 Airbus A330s	2012 to 2014
5 Airbus A330s	2012 to 2013 (SWISS)
<b>Medium-haul fleet</b>	
69 Airbus A320 Family (including neo)	2012 to 2018
8 Airbus A320 Family	2012 to 2014 (Germanwings)
5 Airbus A320 Family	2012 to 2014 (SWISS)
<b>Short-haul fleet</b>	
30 Bombardier CSeries	2014 to 2016 (SWISS)
13 Embraer EMB190 Family	2012 to 2013

## SWISS

### Tenth Airbus A330-300 starts flight operations

SWISS began operations with its tenth Airbus A330-300 in January 2011 and thus completed its first round of integrating this advanced type of aircraft into its fleet. In addition, its affiliate Edelweiss Air received a further A330-300 in February 2011. Since April 2009, these new aircraft have systematically replaced the existing fleet of older Airbus A330-200s. Starting in 2012, SWISS will incorporate another five A330-300s into its long-haul fleet and thus operate 15 aircraft of this type in the future. Their highly efficient Rolls-Royce Trent 700 engines reduce fuel consumption per passenger by about 13 percent compared with the predecessor model.



Moreover, starting in 2014, SWISS will take delivery of a total of 30 Bombardier CSeries aircraft, which will replace the Avro RJ100 regional aircraft currently in operation. This move will allow the airline to reduce fuel consumption by significantly more than 25 percent compared with the Avro fleet. At the same time, CO<sub>2</sub> emissions will be reduced by about 90,000 tonnes per year. Another plus is that the CSeries aircraft are 10 to 15 decibels quieter than the Avro RJ100s.

## Lufthansa Cargo

### Five Boeing 777Fs to strengthen the fleet

In 2011, Lufthansa Cargo ordered five new Boeing 777 freight aircraft, which will be delivered between 2013 and 2015. The Boeing 777F is considered the most modern cargo aircraft of its size, and according to the manufacturer it offers a higher degree of efficiency and more capacity in long-haul markets than any other twin-engine freighter. The Boeing 777F takes advantage of the advanced characteristics of the Boeing family, including a wing design featuring raked wingtips. It also adheres to QC2 noise standards and therefore allows maximum access to airports with strict noise limits.



The cargo airline AeroLogic, in which Lufthansa Cargo holds an equity share of 50 percent, operates modern Boeing 777F freighter aircraft. Lufthansa Cargo will also operate this type of aircraft from 2013.

### Group fleet

As per 31.12.2011

(changes compared with 2010)

	in possession <sup>1</sup>		age <sup>1</sup>	in operation <sup>2</sup>		age <sup>2</sup>
Lufthansa German Airlines	355	(+ 13)	11.4 (- 0.1)	275	(+ 1)	13.2 (- 0.2)
Lufthansa CityLine	41	(- 15)	9.6 (- 0.3)	57	(± 0)	6.3 (+ 0.6)
Air Dolomiti	6	(- 2)	10.2 (+ 0.4)	16	(- 1)	8.0 (+ 0.7)
Augsburg Airways	0	(± 0)	0.0 (± 0)	14	(- 1)	6.6 (+ 0.7)
Contact Air	0	(± 0)	0.0 (± 0)	8	(± 0)	17.9 (+ 1.0)
Eurowings	5	(- 8)	9.5 (- 0.1)	23	(- 5)	1.7 (- 3.0)
Germanwings	30	(± 0)	6.4 (+ 1.0)	30	(± 0)	6.4 (+ 1.0)
SWISS (including Edelweiss Air)	93	(+ 3)	11.4 (+ 0.5)	86	(± 0)	11.4 (+ 0.5)
Austrian Airlines	88	(- 6)	12.5 (+ 0.9)	81	(+ 1)	12.6 (+ 1.0)
<b>Business segment Passenger Airline Group<sup>3</sup></b>	<b>618</b>	<b>(- 15)</b>		<b>590</b>	<b>(- 5)</b>	
Lufthansa Cargo	18	(± 0)	13.7 (+ 1.0)	18	(± 0)	13.7 (+ 1.0)
<b>Business segment Logistics</b>	<b>18</b>			<b>18</b>		
<b>Group</b>	<b>636</b>	<b>(- 15)</b>	<b>11.3 (+ 0.4)</b>	<b>608</b>	<b>(- 5)</b>	<b>11.2 (+ 0.4)</b>

<sup>1</sup> Aircraft in the Group's possession

<sup>2</sup> Aircraft operated by the Group

<sup>3</sup> without bmi

# The operating fleet of the Lufthansa Group

## Lufthansa German Airlines

including Lufthansa Regional  
and Germanwings



LH: 30 aircraft, 140 seats, 2,000 km range

**Boeing 737-300**



LH: 22 aircraft, 120 seats, 1,950 km range

**Boeing 737-500**



LH: 25 aircraft, 138 seats, 3,260 km range

**Airbus A319-100**



LH: 42 aircraft, 168 seats, 3,020 km range

**Airbus A320-200**



LH: 53 aircraft, 200 seats, 2,900/4,350 km range

**Airbus A321-100/200**



LH: 15 aircraft, 221 seats, 10,000 km range

**Airbus A330-300**



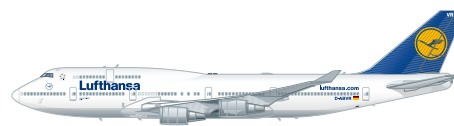
LH: 26 aircraft, 266<sup>1</sup> seats, 11,100 km range

**Airbus A340-300**



LH: 24 aircraft, 306 seats, 12,200 km range

**Airbus A340-600**



LH: 30 aircraft, 352<sup>1</sup> seats, 12,500 km range

**Boeing 747-400**



LH: 8 aircraft, 526 seats, 12,000 km range

**Airbus A380-800**

### Legend

- 4U = Germanwings
- C3 = Contact Air
- CL = Lufthansa CityLine
- EN = Air Dolomiti
- EW = Eurowings
- IQ = Augsburg Airways
- LH = Lufthansa German Airlines, Lufthansa Cargo
- LX = SWISS
- OS = Austrian Airlines
- WK = Edelweiss Air

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

Number of aircraft in operation on 31.12.2011

<sup>1</sup> maximum number of seats, different versions in operation



Lufthansa Regional



EN: 11 aircraft, 68 seats, 900 km range

**ATR72-200**



CL: 5 aircraft, 93 seats, 2,280 km range

**Avro RJ85**



CL: 20 aircraft, 70 seats, 2,310 km range

**CRJ700**



CL: 12 aircraft, 86 seats, 2,440 km range  
EW: 23 aircraft, 86 seats, 2,440 km range

**CRJ900**



IQ: 9 aircraft, 70 seats, 1,200 km range

**DHC 8-400**



C3: 8 aircraft, 100 seats, 2,000 km range

**Fokker 100**



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

**Embraer 190**



CL: 11 aircraft, 116 seats, 2,590 km range  
EN: 5 aircraft, 116 seats, 2,590 km range  
IQ: 5 aircraft, 116 seats, 2,590 km range

**Embraer 195**



4U: 30 aircraft, 150+ seats, 3,500 km range

**Airbus A319-100**

Germanwings

**SWISS**  
including Edelweiss Air



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

**Avro RJ100**



LX: 7 aircraft, 138<sup>1</sup> seats, 3,000 km range

**Airbus A319-100**



LX: 22 aircraft, 168<sup>1</sup> seats, 3,650 km range

**Airbus A320-200**



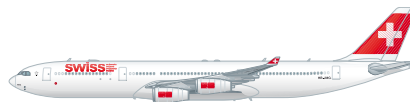
LX: 7 aircraft, 200<sup>1</sup> seats, 3,200 km range

**Airbus A321-100/200**



LX: 10 aircraft, 236 seats, 8,400 km range

**Airbus A330-300**



LX: 15 aircraft, 219 seats, 10,500 km range

**Airbus A340-300**

Edelweiss Air



WK: 3 aircraft, 168<sup>1</sup> seats, 4,950 km range

**Airbus A320-200**



WK: 1 aircraft, 285 seats, 11,500 km range

**Airbus A330-200**



WK: 1 aircraft, 332 seats, 10,000 km range

**Airbus A330-300**



## Austrian Airlines



OS: 14 aircraft, 76 seats, 1,630 km range

### DHC 8-400



OS: 9 aircraft, 80 seats, 2,085 km range

### Fokker 70



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

### Fokker 100



OS: 2 aircraft, 121 seats, 2,220 km range

### Boeing 737-600



OS: 2 aircraft, 138 seats, 4,440 km range

### Boeing 737-700



OS: 7 aircraft, 184 seats, 4,680 km range

### Boeing 737-800



OS: 7 aircraft, 138 seats, 4,500 km range

### Airbus A319-100



OS: 9 aircraft, 174<sup>1</sup> seats, 4,300 km range

### Airbus A320-200



OS: 3 aircraft, 200 seats, 2,360 km range

### Airbus A321-100



OS: 3 aircraft, 200 seats, 3,500 km range

### Airbus A321-200



OS: 6 aircraft, 240<sup>1</sup> seats, 9,800 km range

### Boeing 767-300



OS: 4 aircraft, 309<sup>1</sup> seats, 11,500 km range

### Boeing 777-200



LH: 18 aircraft, 516m<sup>3</sup>/89.4t, 7,000 km range

### Boeing MD-11F

## Lufthansa Cargo





## Prizes and awards

In 2011, Lufthansa again received numerous prizes and awards that honor the diverse commitments of the Group and its companies. Below is a selection:

### Lufthansa

- “Best Transatlantic Airline” at the World Airlines Awards Skytrax 2011
- “Europe’s Leading Airline” at the World Travel Awards 2011
- Award for “Best Business Class on German and European routes” and “Best Airline Website for Business Travellers” from the readers of the magazine Business Traveller Deutschland
- Best airline in the category “Long-haul Gateway” at the Travel Star Awards of the Swiss trade publication Travel Inside
- “Fast Travel Award” 2011 of the air transport association IATA
- Condé Nast Traveler World Savers Award 2011 in the category “Doing it All” for the Group’s commitment in the areas sustainability and environmental responsibility
- Award in the category “Sustainability: Environmental Innovation” at the Travel + Leisure Global Vision Award 2011
- Special award for the Lufthansa biofuel project burnFAIR at the Clean Tech Media Award 2011
- “Service Champion” in the category Airlines in Germany’s largest service ranking
- Multiple top rankings for Lufthansa Miles & More at Frequent Traveller Awards 2011
- Manager Magazin attested once again Lufthansa’s first-rate image and selected the company as Industry Winner 2011 in the category “Transport & Logistics”
- Double award for the Lufthansa School of Business from the European Foundation for Management (EFMD) in 2011 for “Partnership in Design, Development & Delivery” and for its contribution to organizational development within the scope of its partnership with the Lancaster University Management School and McGill University
- Award for the onboard Internet access Lufthansa FlyNet® as “Product of the Year 2011” from Germany’s leading computer magazine CHIP
- Lifestyle magazine Mate honored Lufthansa with the Travel Award 2012 for target group-oriented product offers and appropriate communications

### Group companies and Group airlines

- Award for SWISS as “Europe’s Leading Airline Business Class” at the World Travel Awards 2011
- SWISS again named “Best airline on short- and medium-haul routes” at the Travel Star Awards of Swiss trade publication Travel Inside, followed by Lufthansa and Austrian Airlines.
- SWISS honored as “Best Airline in Western Europe” at the World Airlines Awards Skytrax 2011, followed by Lufthansa and Austrian Airlines
- Edelweiss Air again received Golden Star Travel Award as “Best airline on short- and medium-haul routes” in the category “Regional and Leisure Airlines” 2011
- Austrian Airlines won first place in the categories “Best Business Class Catering” and “Staff Service Excellence Europe” at the World Airline Awards Skytrax 2011
- Austrian Airlines received the “Crystal Cabin Award 2011” for the European passenger seat
- Award for Lufthansa Cargo as “Carrier of the Year” and “Best Carrier to Europe” of the Canadian International Freight Forwarders Association (CIFFA)
- Lufthansa Cargo selected as “Best International Freight Carrier” by the Airforwarders Association (AfA)
- Award for Lufthansa Cargo in the category “Easy to deal with” at the Hellmann Worldwide Logistics Global Carrier Award 2011
- Award for Lufthansa Cargo as “Best Cargo Airline Worldwide” and “Best European Cargo Airline” at the Cargo Airline of the Year Awards
- Lufthansa Technik received the “Crystal Cabin Award 2011” in the category “Materials and Technical Components” for its evacuation path marking system Guideline ColourFit
- Lufthansa Systems honored as “Company With A Future” 2011 in the category “Large Companies” and in the category “Social Responsibility” by the Polish business associations with regard to its development location in Gdansk
- LSG Sky Chefs awarded the renowned design prize “Observateur du design 2012” for its Business Class meal box “Metropolitan”





# Economic Sustainability

Group strategy

Management and corporate structures

Corporate governance and compliance

Corporate sourcing

Infrastructure



# Group strategy

## The Lufthansa Group – “Europe’s Airline Powerhouse” in the future as well

Over the past decade, the Lufthansa Group has risen to become the world’s leading aviation group. Apart from actively participating in the consolidation process of the European aviation industry, the company strengthened its international market position by continuously expanding Star Alliance, the most successful airline network worldwide.

In 2011, the Lufthansa Group further refined its corporate strategy and its Mission Statement. Given the swiftly changing market and competitive conditions, this is a necessary step on the path toward expanding and strengthening the position of the Lufthansa Group as an airline powerhouse and Europe’s number one.

Extraordinary challenges are almost daily fare for the Lufthansa Group and the entire airline industry – natural catastrophes, political crises, military conflicts, financial and economic crises, and epidemics are all developments that quickly lead to fluctuations in demand for air transport. In addition, there are regulatory changes, such as Germany’s aviation tax. The Group’s business seg-

ments have to adapt to new market conditions continuously. In the future, the Lufthansa Group will continue to act within a volatile market and the fields of tension generated by numerous international developments.

### **New strategy secures the Group’s future**

The Lufthansa Group pursues the explicit goal of generating growth by creating value and continuing to secure the Group’s future by means of a sound financial profile over the long term. It is a solid financial framework that creates the freedom to shape the Group’s development according to strategic criteria rather than being obligated to bow to short-term practical constraints.

Against this background, Lufthansa has developed a new strategic action framework that allows the Group not only to adapt to constantly changing external conditions, but also to take an active role in shaping the industry’s sphere – independently of the current market position. “Just as our industry is changing and evolving, Lufthansa has to adapt its strategy. The Lufthansa Group must take part in shaping our industry and remain the driving force in European civil aviation,” emphasizes Sadiq Gillani, Senior Vice President Group Strategy at Deutsche Lufthansa AG.

One of the new strategy’s most important goals is to further strengthen the Lufthansa Group’s position as “Europe’s Airline Powerhouse” and achieve a higher operating margin over the long term. To reach these objectives, the focus is on five core measures:

### **1. Reorienting the portfolio**

To focus its portfolio, the Lufthansa Group withdraws from persistently loss-making businesses, as has already been done in the cases of Lufthansa Italia and bmi. Furthermore, the company is considering the possible disposal of non-strategic equity investments, while simultaneously examining selected airline acquisitions.

### **Mission Statement**

In 2011, the Lufthansa Group further developed its corporate guidelines. The new Mission Statement represents the essence of the Group’s strategy. It serves to set goals and in addition provides orientation both internally and externally.

- We are Europe’s Airline Powerhouse, connecting Europe with the world and the world via Europe.
- We provide reliable passenger and air-cargo services for our customers, in seamless cooperation with our partners in a volatile environment.
- As the world’s leading aviation group, we are the global leader in selected aviation services.
- Our highly motivated and dedicated team strives to deliver high quality. We value entrepreneurship and collaboration, supported by transparency, trust and diversity.
- Our target is to grow profitably and maintain a healthy financial structure, to enable investment in the development of our businesses, fleet and people.
- We are committed to making a sustainable contribution through environmentally and socially responsible and compliant business practices.



## 2. Improving efficiency within the organization

The efficiency across the organization is to be increased further on a continuous basis by improving coordination within the Group and realizing synergy potentials – while maintaining the business segments' entrepreneurial responsibility. In this context, the flexibility and mobility of employees and the topic of diversity play important roles. By launching the project "Management Landscape 2020" ("FK 2020"), the Group has already begun to introduce more diversity in its management at all levels (see "A key factor for the Group's success: Diversity in management" on page 46).

## 3. Expanding and stabilizing leading market positions

The Lufthansa Group is market leader in many segments and aims at stabilizing and selectively expanding this position by means of growth. In the other areas, the Group plans to achieve a position of market leadership. To this end, management counts on organic growth to develop strategic markets such as Asia, South America and Africa, as well as on growth in the different business segments.

## 4. Improving earnings

Furthermore, the Group intensifies those measures that increase earnings. The earnings-securing program "Climb 2011" of Lufthansa German Airlines (2009-2011) is followed in 2012 by the corporate program SCORE (see page 38). This program consists of three key elements: projects in the Group companies and Group functions; shared projects involving the airlines; and projects covering the entire Group. In addition to implementing measures to improve earnings, SCORE aims at a significant deepening of cooperation between the airlines and service companies, and at tightening the company's structures.

## 5. Making selective investments

Selective investments in the Group fleet, in the onboard product and in the infrastructure at the hubs also serve to strengthen the Lufthansa Group's competitiveness. Investments in projects such as "Pure Sky," which bundles the company's biofuel activities, illustrate Lufthansa's long-term commitment to corporate responsibility. The investment volume is guided by the Group's financing strength in order to secure investment grade rating, the positive rating of the company's financial standing, over the long term.



emissions trading    mobility  
demographic change    population growth  
spheres of political power  
financial and economic crisis    safety  
megacities    environmental protection  
climate change    service-oriented society  
globalization    to secure one's living  
shortage of resources    capital markets

## Megatrends pose challenges for civil aviation

The civil aviation industry is facing significant challenges over the years ahead from highly diverse external influences. The room for maneuver is determined by worldwide megatrends that include the increasing globalization and international division of labor, population growth, increasing needs for mobility, and the development of mega-urban regions.

According to the United Nations, there will already be 9.2 billion people on Earth in 2050. Population growth is only taking place in developing nations. This is accompanied by a trend toward more and ever larger megacities. Today, 39 metropolises already represent more than 90 percent of air traffic (takeoffs, landings, stopovers). Their number is expected to grow to 87 by 2030. By then, 12 of 20 airports for very large aircraft will be in Asia.

In line with a growing world population and an increasing number of societies participating in the division of labor, demand for mobility will continue to grow – and along with it the need for resources. On the other hand, this means greater scarcity of resources and thus an increasing oil price over the long term. Lufthansa has to prepare itself for rising costs not only due to continuously rising fuel prices, but also because of new taxes, such as Germany's aviation tax, as well as oligopolistic supplier structures, for example among handling companies at many German airports.

Simultaneously, the expansion of the Gulf airlines and the low-cost carriers leads to continuously increasing competitive pressures on established service providers. Independently, situations of political upheaval and also natural catastrophes – as occurred most recently in March 2011 in Japan – again and again influence the situation in aviation and demand a high level of flexibility on the part of the airlines.

Furthermore, supplementary financial burdens for aviation and the Lufthansa Group are on the rise due to the EU's Emissions Trading System, which distorts competition (see "Emissions trading system – Shared global solution wanted" on page 76). The weak economic situation in conjunction with these increasing burdens will result in a cumulative loss of 600 million US dollars for Europe's airlines in 2012, according to IATA estimates.

### **Further optimizing the control of the flying companies**

With a 75-percent share in the Group's 2011 revenue, the flying companies are the engine driving the Lufthansa Group. The Group is planning to optimize their coordination and control further. Growth is increasingly shifting to the emerging nations and thus opening up new markets from Europe. The focus of the Lufthansa Group is on the further development of its long-haul network, the strengthening of partnerships within Star Alliance, the expansion of joint-venture cooperations in the North Atlantic region, and the development of new airline joint ventures in Asia, such as Japan+, founded in 2011 with Japanese Star Alliance partner ANA.

Lufthansa German Airlines adapted its structures to the changed competitive environment on 1 April 2011 in order to meet the market challenges with a new organization that is even closer to its customers and markets. Simultaneously, internal decision-making and management processes are to be simplified. In this context, Lufthansa German Airlines reinforced the successful cooperation with Group subsidiary Germanwings. The goal is to increase customer value by means of increased flexibility and to strengthen the economic efficiency of decentralized connections within Europe. This includes the company's Berlin strategy. By stationing a modern Airbus fleet in Berlin, significantly expanding flight options, creating several hundred new jobs and making investments of more than 60 million euros, the Lufthansa Group significantly broadens its presence in the Berlin region in 2012.

### **Logistics, MRO, IT Services, Catering**

As one of the most important service providers in the logistics industry, Lufthansa Cargo AG will focus even more prominently on more efficient processes, quality leadership and IT standardization. Meanwhile, Lufthansa Technik AG concentrates on generating organic growth within the existing portfolio. The focus here is on the precise identification and meeting of customer expectations, but also on internal topics such as lean processes or "Great Place to Work®." A further point in the strategic orientation is a stronger presence in growth markets.

Lufthansa Systems is implementing the restructuring program "Jetzt!" ("Now!"). At LSG Sky Chefs, the world's largest provider of airline catering, the focus is on future strategy to grow profitably. To this end, the company will not only

invest in new markets and services, but has also aligned activities in Germany even more explicitly to local market conditions since 1 July 2011. Among other measures, this includes an expansion of the entrepreneurial room for maneuver at the individual locations.



### **Corporate program SCORE**

The fundamental conditions for a future-oriented development of the Lufthansa Group are sustainable business practices and profitable growth. These two factors create the foundations for investments in a modern fleet, innovative products for customers, qualifications for employees, the commitment to social concerns and the activities in environmental care. To be able to finance the investments planned, the Group needs significantly higher profits, which the company intends to achieve by means of the corporate program "SCORE – Change for Success," which was presented in February 2012 to about 1,000 managers. Its goal is to increase the operating result by at least 1.5 billion euros by the end of 2014, compared with 2011. The program's savings will have a full effect on annual results from 2015.

SCORE is the acronym derived from the action areas on which the corporate program concentrates: synergies, costs, organization, revenue and execution. At the same time, the term also refers to "achieving something" and "making a score."

The new program includes all business segments and airlines, and consists of three significant building blocks: projects within the Group companies; joint projects involving the airlines; and projects involving the entire Group. "SCORE's focus is on measures that increase profitability by means of synergistic effects, cost reductions, structural changes and long-lasting revenue increases," explains Josef Bogdanski, who heads SCORE.

Beyond that, the concept aims at significantly intensifying the cooperation between the airlines and the service companies and tightening the structures. For example, tasks are to be bundled to realize synergies that have so far not been taken advantage of for the good of the entire Group. "To start with, the focus is on opti-







The goal of SCORE presented by the Executive Board to about 1,000 managers on 6 February 2012, is to increase the Group's operating result sustainably by at least 1.5 billion euros by 2014.

mizing 'neighborly exchanges,' to realize synergies from joint purchasing and to reduce costs in the administrative areas," says Bogdanski. Further projects at the level of the business segments and the Group level are currently being set up.

#### Group strategy is the guideline

All the same, while the new Group strategy has priority, it is not set in stone and is rather a guiding principle that is to be adapted, developed further and filled with life by management and employees. For this reason, Lufthansa has chosen a number of approaches to impart the new strategy and the necessity of SCORE to the employees. This includes reports in the Group's internal media, comprehensive information on the intranet, and numerous internal events such as town meetings with the top management.

In the future, the Lufthansa Group will continue to benefit from the diversity of its business segments, which have a stabilizing effect on the development of revenues within the system the company represents. This structure built on business segments will continue to serve as the basis on which the company can develop through profitable growth over the long term.

#### Operating profit achieved in a difficult market environment

In the 2011 financial year, the Lufthansa Group increased revenues by 8.6 percent and reported an operating profit of 820 million euros in an extremely difficult and turbulent market environment. However, the high cost of fuel, regulatory interventions such as the German aviation tax, and charges resulting from the sale of British Midland Ltd. (bmi) led to a negative Group result. As an exception to the company's dividend policy, the Executive Board and the Supervisory Board decided nevertheless to have shareholders participate in the operating success and have paid out a dividend of 25 cents a share. "The trust in the Lufthansa share and in the positive development of our company pays off," said Christoph Franz, Chairman of the Executive Board and CEO of Deutsche Lufthansa AG. For further information on the Lufthansa share, see page 22 onwards in the Lufthansa Annual Report 2011 or its online version at [www.lufthansa.com/investor-relations](http://www.lufthansa.com/investor-relations)





## Management and corporate structures

Lufthansa is a German stock company with headquarters in Cologne. The company employs the dual management structure ordinarily followed in Germany. The Executive Board is solely responsible for steering the company, aligning it strategically and increasing its value long-term. The Supervisory Board appoints, advises and supervises the Executive Board.

Deutsche Lufthansa AG fulfills two functions: It is the ultimate parent company and the largest operating company within the Group.

### Shareholder structure

The Lufthansa share has been traded on German stock exchanges since 1966. It is represented in the German Share Index DAX and is part of the Prime Standard of Deutsche Börse (German Stock Exchange). Lufthansa fulfills the highest level of international transparency requirements related to this standing. The company's share capital is divided into 457.9 million registered shares, which

are held by about 352,000 shareholders. According to the standards of Deutsche Börse, the free-float quota was at 100 percent for Lufthansa shares at the end of 2011. 38.5 percent of the equity capital was held by private investors, and 61.5 percent by institutional investors. The share of German shareholders was 68.6 percent (see chart on page 9). To maintain its international traffic rights and air transport operating permit, Lufthansa must be able to prove at any time that the majority of its shares are in German possession.

## Corporate governance and compliance

Responsible company management in line with the rules of effective corporate governance is a substantial part of Lufthansa's identity. The efficient, transparent structures and processes implemented by the company reflect this approach splendidly.

Furthermore, the Group places the greatest importance on open and clear corporate communications in order to respond to steadily rising demands for information from shareholders, employees, customers and the public – thus maintaining and strengthening their trust in the Group. Lufthansa fulfills the recommendations of the German Corporate Governance Code with few exceptions. For the declaration of conformity pursuant to the German Corporate Governance Code, see the Group Management report in the Annual Report 2011 on page 28. A comprehensive compliance program, as described below, ensures lawful conduct with regard to legal requirements and prohibitions.

### The Lufthansa Compliance Program

As adhering to legal and social regulations and standards is everyday practice at Lufthansa, the Group has not formulated a separate Code of Conduct. Special attention is placed on ensuring a corporate culture that demands conformity with rules and creates a framework of conditions that promotes such conformity. This is the purpose of the Lufthansa Compliance Program, which

was introduced in September 2004. It is to guarantee employees from breaking the law, train them in applying and interpreting legal norms, and support them with advice in their daily work.

Given the topic's importance, Lufthansa set up a Compliance Office on 1 October 2007, as part of its central legal department, which reports to the Chairman of the Executive Board. It is responsible for the implementation, further development and communication of the Lufthansa Compliance Program and is available as a central contact for questions regarding compliance. In addition, Compliance Commissioners, who are named at the various Group companies, ensure the Group-wide adherence to and the effective implementation of the Compliance Program. The Compliance Office coordinates the investigation of circumstances relevant to compliance and in this context serves as a contact point for cartel and investigative authorities. In such cases, Lufthansa fully cooperates with the authorities. The core components of the Lufthansa Compliance Program are its compliance guidelines. These are binding internal regulations that give employees not only strategies but also a binding framework for



action which guarantee a standardized and law-abiding external conduct for Lufthansa. The company is not willing to tolerate possible violations of law on the part of its employees. Culpable breaches of law lead to consequences under labor law and may also entail personal liability.

The Lufthansa Compliance Program currently comprises four building blocks: Competition, Capital Market, Integrity and Corporate Compliance.

### **Competition Compliance**

The module Competition Compliance introduces employees to the relevant regulations of cartel legislation, so as to minimize or exclude risks for Lufthansa in this area. The Competition Compliance guideline provides a strategy for conduct in the context of business contacts with third parties as well as a binding framework of action to ensure a standardized and lawful external presence of Deutsche Lufthansa. All employees handling issues relevant to a cartel are trained in the fundamental regulations of European and national antitrust legislation by means of a Web-based training (eLearning). Special emphasis is given to those areas of antitrust law that have particular importance for everyday business practice.

### **Capital Market Compliance**

The module Capital Market Compliance familiarizes employees with current capital market law, such as regulations relating to insider trading or ad hoc publicity. The goal is to keep both the Lufthansa Group and its employees from breaking the law. In the context of Capital Market Compliance the employees and executive bodies concerned are also instructed by means of Web-based training, which gives them in-depth insights into the regulations of the securities trading law. The law's individual provisions are explained in the context of daily practice and the explanations are illustrated with many examples.

### **Integrity Compliance**

With the module Integrity Compliance, Lufthansa documents its fundamental approach of law-abiding conduct in business relationships. The obligation on the part of Lufthansa and its employees to adhere to non-corrupt and ethically correct conduct flows naturally from current law, the internal compliance guidelines and Lufthansa's memberships in relevant national and international organizations. Examples of these are Lufthansa's commitment to the principles of the UN Global Compact, its membership in Transparency International and its obligation to

respect the ICC guidelines to combat corruption in business dealings.

The Integrity Compliance guideline provides support in handling invitations, gifts and other attentions and indicates room for maneuver. Furthermore, it raises awareness for potential conflicts of interest. The obligatory Web-based trainings specifically teach employees behavior conforming to compliance. The trainings provide a comprehensive overview of the legal framework, causes and facts of economic crimes. Employees are instructed by means of realistic practical examples relating to specific business segments about possible compliance risks. Control questions at the end of each learning unit allow employees to check the material learned.

### **Corporate Compliance**

The module Corporate Compliance bundles those internal regulations that are considered essential for Lufthansa from a legal perspective and makes these transparent for employees.

### **Compliance training**

Automated IT processes ensure that all employees and executive bodies at Lufthansa participate in the eLearning courses relevant for them once a year. The employees of the subsidiary companies can also access these eLearning courses. As a complement to eLearning courses, the Compliance Office regularly offers trainings involving the participants' physical presence. Compliance trainings are also an integral part of leadership seminars, management courses and other internal continuing education and training events at Lufthansa.

### **Ombudsman system**

The ombudsman system, which has been implemented worldwide, has been an integral and tried-and-tested part of Lufthansa's Compliance Program. It was introduced on 1 December 2007 and serves both as an additional preventive measure against economic crimes and at protecting Lufthansa and its employees.

Relevant information can be given by employees or by third parties to an ombudsman outside the company, either by telephone, in writing or in person. This function is fulfilled by a lawyer. In the context of his contractual relation with Lufthansa, the ombudsman establishes with the informant a particular relationship of trust, which consists of the transmission of the information entrusted to him to Lufthansa under absolute secrecy with

regard to the name and identity of the informant. In this relationship, the ombudsman is fully bound by the legal obligation of professional secrecy and also has the right to refuse evidence vis-à-vis any public investigative authorities that might become active. In addition, Lufthansa and the ombudsman have expressly agreed that the identity of an informant will not be revealed and any documents the ombudsman might have received will not be handed over, unless the informant has expressly stated his or her desire that these items be made public. The revealing of an informant's identity to Lufthansa or third parties without his or her consent is therefore ruled out.

### **Monitoring and reporting**

All Compliance Commissioners of the Lufthansa Group get together once a quarter. Their goal is to inform about current new developments in the area of compliance and initiate the implementation of relevant measures. In addition, the relevant implementation of an effective compliance program is evaluated with reference to the current requirements in the context of the accounting modernization law by means of self-audits and external audits.

The Supervisory Board's Audit Committee is informed twice a year by means of the Compliance Report about current developments as they relate to compliance issues and the current state of the implementation of the Compliance Program within the Group, including training rates.

## Corporate sourcing

At the end of 2011, Lufthansa successfully concluded the project "Procurement Leadership," which it had launched in early 2009. The focus was on two topics: the professionalization and standardization of the Group-wide procurement processes and the creation of a strategic goods category management. The latter was to enable the procurement areas to contribute sustainably about 300 million euros to the operating result by 2011.

To secure the results in a lasting way and to deepen them, the Group procurement function was set up as a new organizational unit reporting to the Executive Board member in charge of finances and aviation services. This department continues work on the fundamental issues and also plans the conclusion of setting up the largest part of a Group-wide procurement IT infrastructure by 2015. One of the goals in this area is to support supplier management by standardized processes on the application side. An integral part is the topic of corporate responsibility (CR) along the chain of suppliers. Lufthansa already demands that its suppliers adhere to binding CR criteria and has anchored these Group-wide in its contracts

and internal guidelines. In the future, however, the assessment and audit of suppliers from a comprehensive perspective of corporate responsibility will move more to the foreground. Lufthansa continues to orient itself by internationally accepted conventions on environmental protection and employee safety, legal requirements concerning the fight against corruption, and security regulations in information processing. Suppliers that do not accept these contractual clauses are not admitted to Lufthansa's circle of suppliers.



# Infrastructure

## Investments secure tomorrow's mobility

Mobility is one of the indispensable fundamentals of our current way of life. It brings people together, is the engine driving economic and social developments, and creates individual affluence. The growth of the world's population, the rising number of mega-urban regions and intensifying globalization create an ever-increasing demand for mobility.

Against this background, aircraft manufacturer Airbus predicts that the number of passenger aircraft will double by 2030 (from 15,000 to 31,000) as will the number of passengers, which is to grow by 4.8 percent per year on average. Over the same period, the volume of air cargo is even expected to grow by 5.1 percent a year. To secure such increasing mobility needs, a demand-oriented and appropriate infrastructure is needed. For many years, the Lufthansa Group has endeavored to make the transport of people and goods as sustainable as possible, for example by operating more fuel-efficient and quieter aircraft. On the ground as well, the aviation group makes its contribution to orienting the infrastructure to future challenges in a circumspect and realistic manner. Airport infrastructures adapted to demand are an important element in the tried-and-tested four-pillar strategy for climate protection formulated by the aviation industry (see graphic on page 71).

### Frankfurt Airport

Over the past five years, Lufthansa alone invested about 1 billion euros at its Frankfurt location. With about 71,000 employees at around 500 companies, Frankfurt Airport is not only the largest single place of work in Germany, but it is also an important lifeline for the Federal Republic. The

export-oriented German economy and the country's entire logistics industry benefit from the central location of one of the world's leading passenger and cargo hubs. At the same time, Frankfurt is the home base of Deutsche Lufthansa AG, which employs 37,000 people locally and is thus considered Hessen's largest employer. The basis for further economic growth and numerous additional jobs are in particular the Runway Northwest, which was opened on 21 October 2011, and new terminals. For example, the new runway increases the airport's capacity by 50 percent. Furthermore, the inauguration of the new A-Plus pier is slated for summer 2012. It will be used exclusively by Lufthansa and increase the airline's capacity by 6 million passengers per year.

By contrast, the rigid night-flight ban between 11 p.m. and 5 a.m. at Frankfurt Airport, which was confirmed by the Federal Administrative Court in Leipzig at the beginning of April 2012, will have a palpable negative effect on the economic development of this important German export and logistics location. As worldwide competition is continuously increasing, Lufthansa – and in particular its subsidiary Lufthansa Cargo – depend on competitive operating hours at its hubs. "On North Atlantic routes in particular, the nighttime departures are indispensable for our customers.



Frankfurt Airport's new Runway Northwest.





On 23 April 2012, the cornerstone was laid for the new satellite facility at Munich Airport. This new building will provide Lufthansa and its partner airlines with additional handling capacities and thus allow them to accommodate the rising number of passengers.

The migration of urgent express products to other hubs in Europe will continue”, explains Karl Ulrich Garnadt, Chairman of the Executive Board and CEO of Lufthansa Cargo AG. “Switching to other airports is impossible for Lufthansa Cargo, however, as more than half the cargo on board passenger aircraft is transported via Frankfurt.”

#### **Munich Airport**

At Munich Airport, Flughafen München GmbH (FMG) and Lufthansa will construct a new satellite building at Terminal 2 by 2015. Terminal 2 surpassed its capacity of 25 million passengers for the first time in 2011, when it handled 26.5 million passengers. The new building will provide additional handling capacities for 11 million passengers for Lufthansa and its partner airlines, thus meeting the requirements of continuing growth in passenger volumes.

At the same time, the satellite building will set new standards in the areas of sustainability and energy efficiency, as its ratio of CO<sub>2</sub> emissions will be 40 percent lower than those of the two existing terminals. To achieve this, its walkable climate facade with refrigeration storage media stores cold during the summer months from the natural cooling during the night, which it releases during the day. Furthermore, air conditioning will take advantage of modern displacement flow diffuser technology. Inside the building, a glass wall closes off the area where passengers change from one level to another from the actual terminal levels. The space thus isolated serves as a climatic buffer for the entire building.

#### **Berlin Brandenburg Airport**

In context with the opening of the new Berlin Brandenburg “Willy Brandt” Airport (the opening was postponed from June 2012 to March 2013) the Lufthansa Group is expanding its presence in the capital region significantly by stationing a fleet of modern Airbus aircraft, boosting its timetable extensively, creating several hundred additional jobs and investing more than 60 million euros. For example, Lufthansa Technik is investing 16 million euros in new office and hangar surfaces for the maintenance of short- and medium-haul aircraft. The maintenance hanger will provide space for up to five standard fuselage aircraft or one wide-body aircraft up to the size of an Airbus A340 (see “Lufthansa Technik builds maintenance hangar at the new capital city airport in Berlin” on page 83).





# Social Responsibility

Diversity

Employment policy based on partnership

Corporate training and continuing education

Employee health and safety protection

Facts and outlook



# Diversity

## A key factor for the Group's success: Diversity in management

Companies with international operations increasingly operate in the field of tension created by world-wide megatrends. Globalization, intensifying cost and competitive pressures as well as ever-more varied customer profiles and demands require significantly more flexibility, performance and efficiency. Additional pressure on companies comes from demographic change and – particularly in Germany – the looming lack of qualified personnel and managers.

This increasing complexity will also have an effect on the Lufthansa Group. To ensure that the Lufthansa Group can master these challenges successfully, it is of central importance to increase the level of diversity in the company's management landscape. A more broadly set-up management team that disposes of varied competencies and experiences makes it easier for the company to meet heterogeneous market requirements and customer demands. In addition, a diversified management level not only secures

FK 2020 is an integral part of the Lufthansa Group's strategy and will make a significant contribution to improving the company's performance and competitiveness. The focal point of this project, which includes all business segments, is on the diversity dimensions of all ages, gender balance, mixed cultures and different skills. This selection takes into account the predominantly monocultural character of current management, which is to become gradually more heterogeneous by means of FK 2020.



“Our goal is to dismantle barriers of any kind long-term and to create an attractive work environment in which women and men equally shape and develop the company's future across all hierarchy levels.”

Stefan Lauer  
Chief Officer Group Airlines &  
Corporate Human Resources  
Deutsche Lufthansa AG

For Lufthansa, a broad range of competencies and experiences in management is a central resource for reaching its goals in the future as well. In this context, varied international, professional and cultural backgrounds play an increasingly important role. By means of the project Management Landscape 2020, the company is able to access this potential over the long term in a structured manner and to mirror the diversity among its customers and employees with an equally diverse management.

### Broader scope in age distribution secures management resources

To counteract the looming lack of qualified personnel and managers, the Lufthansa Group aims at a broader scope in age distribution among managers. The reason is that 60 percent of Lufthansa managers are currently above the age of 46, while the average age of managers is 48. Thus, management responsibility is mostly in the hands of a single age group. Over the medium term, such homogeneous age structures lead to a lack of qualified young managers as a significant part of today's managers will leave the Group simultaneously in 2019. Therefore, the transfer of knowledge to subsequent management generations has to be prepared early and anchored structurally. FK 2020 will make a significant contribution in this area and expand the scope of age in Lufthansa management. “A greater degree of age variance secures our new

the long-term competitiveness and future viability of the aviation group, but it also allows the company to act flexibly in a complex environment at any time, and to recognize customer needs more quickly, better understand them and translate them into the best possible products and services – the most important consideration for a service company.

To realize the potential of a systematic diversity management and prepare the Lufthansa Group for current and future developments, the Executive Board initiated the project “Management Landscape 2020” (“FK 2020”) in 2011. The goal is to realize more flexibility and diversity at all management levels and to expand these qualities among junior executives across the Lufthansa Group.



generation of management, provides more perspectives due to different backgrounds of experience and allows us an effective steering of the knowledge and experience transfers at the higher management levels,” explains Michael Böttcher, Director Project Executive Management Landscape 2020.

**Better incorporate the potentials of female managers**

The share of women in management positions stood at 13.6 percent in 2011 at the Lufthansa Group, while the share of women with staff responsibility reached 35.5 percent. This shows that a decisive pool for the Group’s management recruitment has not been sufficiently addressed thus far, as having more women in management positions enriches and strengthens Lufthansa’s management landscape. Therefore, FK 2020 is to increase the share of women in higher management by about 30 percent by 2020. “Our goal is to dismantle barriers of any kind long-term and to create an attractive work environment in which women and men equally shape and develop the company’s future across all hierarchy levels,” emphasizes Stefan Lauer, Chief Officer Group Airlines & Corporate Human Resources at Lufthansa Group.

**Promote managers’ international experience**

An outward-looking perspective and a respectful way of treating each other and customers are a matter of course for an aviation company with international operations such as the Lufthansa Group. Considering the continued development of globalization and interlinking of markets, Lufthansa needs a management team that knows the different demands of markets and is able to handle them with ease. To do so requires an ever-greater degree of internationalization – not only among employees, but also among managers. However, at the moment only 14 percent of the Group’s managers do not have German nationality. Every fifth management position is located outside of Germany and 61 percent of these are filled by German nationals. To increase the level of internationalization among managers and upcoming managers, FK 2020 will help identify and promote highly qualified candidates with experience abroad and prepare them for working with non-German management colleagues.

**More flexibility and scope for shaping management careers**

Against the background of the challenges posed by Lufthansa’s dynamic business environment,



Presentation of the project “Management Landscape 2020” at the managers conference on 6 February 2012 in Frankfurt.

flexible career models and alternative careers are gaining increasing importance. Apart from professional leave – in the shape of sabbatical years, for example – this also includes the option of transferring the responsibility of a management position to two managers. As Stefan Lauer points out: “Leadership is divisible as well.” To increase the number of leadership tandems, Lufthansa is planning to make their creation easier by implementing appropriate measures across the Group. Part-time work in management allows both male and female managers to reconcile career goals with family obligations and personal interests.

From the company’s perspective, there are also good reasons for more flexible work-time models in higher management – such as increased work motivation and productivity as well as improved identification with the employer and its goals. Making careers more flexible also means more room for maneuver for the Group. One of the advantages of going beyond pure line organization or complementing line organization with proj-



“A greater degree of age variance secures our new generation of management, provides more perspectives due to different backgrounds of experience and allows us an effective steering of the knowledge and experience transfers at the higher management levels.”

Michael Böttcher  
Director Project Executive Management  
Landscape 2020, Deutsche Lufthansa AG

# Management diversity

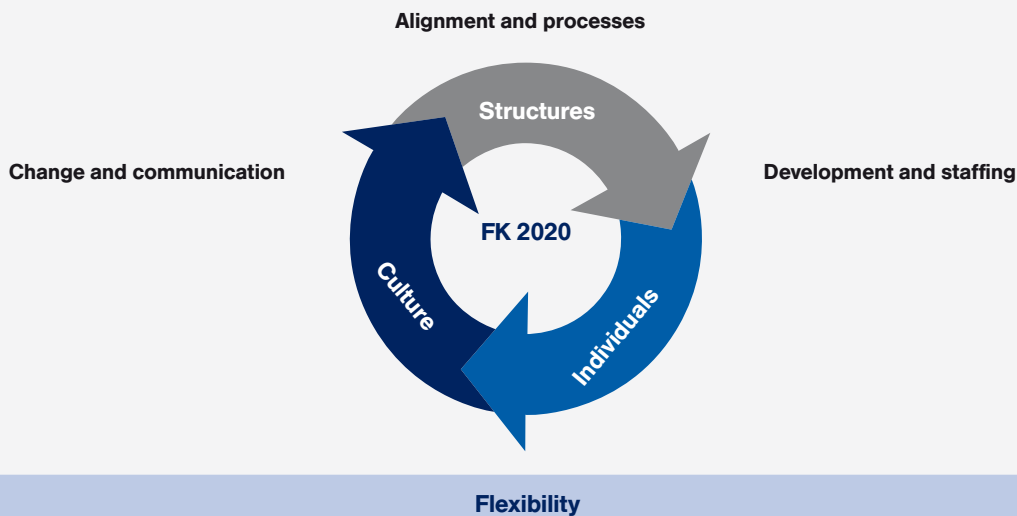
Structure of the project FK 2020 with the four diversity dimensions of all ages, mixed cultures, different skills and gender balance

All ages

Mixed cultures

Different skills

Gender balance



ect and expert careers is that it gives more scope for organizing an effective team quickly and independently of location. Additionally, managers who have passed through different professional stages have acquired a greater wealth of experience.

### Shaping structural changes together

The core team responsible for the project Management Landscape 2020 comprises four employees, who work in close cooperation with the human resource departments at the Group companies. Additionally, FK 2020 is advised by a consulting committee. Its members are managers from all companies and management levels, who simultaneously act as multipliers. "In the current project phase we're above all working on assessing factors such as efficiency and costs of selected measures and instruments," explains project manager Michael Böttcher. "As soon as this diversity check will be concluded in the second quarter 2012, we will decide which measures we will implement in practice."

### The switches have been reset

Whether services gain acceptance in the market depends decisively on the suitability, motivation, qualification and flexibility of the people who provide these services. To ensure that the altered and optimized processes and instruments of FK 2020 really lead to increased diversity in the Lufthansa Group's management, an accompanying change management concept is an integral part of the project. Its task is to prepare managers for the upcoming modifications, take away their fears and make them committed supporters of the changes ahead – for the good of the entire company and its employees. With FK 2020 Lufthansa has reset the switches for the future viability of the Group with its worldwide operations.





# Diversity activities 2011: Added value through varieties

At the Lufthansa Group, people from 141 nations contribute to the company's success every day. They come from the most different cultures and ethnic backgrounds, belong to different age groups and provide an enormous scope of views and competencies. This diversity among its personnel is decisive for the company in its quest to secure its favorable competitive position over the long term.

Just as other companies with international operations, Lufthansa is subject to international megatrends such as globalization, demographic change, lack of qualified personnel and managers, and highly dynamic markets, to name but a few factors. For many years, the Lufthansa Group has counted on systematic diversity management to find suitable solutions for the complex challenges of the 21<sup>st</sup> century. This includes a point of view characterized by openness, which acknowledges diversity among employees, appreciates it and incorporates it as a strategic resource into the service of the company and its employees.

## At a glance:

Of 116,365 employees, of which ...

... 44.6 % are women

... 35.5 % are women with staff responsibility

... 13.6 % are women in management positions

... 5.2 % are pilots,

... 57.8 % work in Germany.

Worldwide, 141 nationalities are represented in the Lufthansa Group. The average age is 40.8 years.

As per 31.12.2011

This perspective has been part of Lufthansa's entrepreneurial identity for many years and led to setting up the organizational unit "Change Management and Diversity" in the area Group Personnel Policies as long ago as 2001.

Nevertheless, the Lufthansa Group always aims at adapting its diversity management to changing external conditions and developing it further. This includes transferring the traditionally high level of structural diversity among employees to the area of management (see "A key factor for the Group's success: Diversity in management" on page 46).

## "appreciation creates value"

Whether a company produces innovative ideas and products depends decisively on whether its employees are able to apply the diversity of their competencies, their attitudes and ways of thinking. The switches are set by the Lufthansa Group's company-wide diversity strategy, which is based on the principle "appreciation creates value." The focus is on efforts to create an appropriate balance between the Group's economic interests and the employees' individual and social concerns. Special attention is given to the diversity dimensions of equal opportunities and support for women, work-life balance, cooperation between different generations, disabilities and cultural diversity, although the emphasis can vary from one business segment or company to another.

## Women in management positions

At the Group, the share of women in management positions increased from 13.1 percent in 2010 to 13.6 percent in the reporting year. The decline in the share of women with staff responsibility, that is to say with functions below the management levels, is due to consolidation effects. This value declined from 36.8 percent in 2010 to 35.5 percent in the reporting year (see page 52). Absolutely, the numbers of women with staff responsibility increased from 4,518 in 2010 to 4,843 in 2011.

## Equal opportunity

Lufthansa has had a new Manager for Equal Opportunity since 1 May 2011 (see interview on page 51). It is her task to develop concepts and suggest measures that improve the professional opportunities for women and that allow men and women to reconcile job and family more readily. To this end, she is in constant dialogue with managers, personnel departments, employees and employee representatives.





Ingeborg Kelderman is Lufthansa Cargo's first female captain on the MD-11F.

### More and more women in the cockpit

Female pilots have been an everyday sight at Lufthansa for 25 years – in the beginning as first officers and since 1 January 2000 also as captains. In 2011, Ingeborg Kelderman became the first woman at Lufthansa Cargo to take the captain's seat aboard a MD-11F. "I hope that the number of female captains will increase significantly over the years ahead," says Fokko Doyen, Fleet Chief MD-11F at Lufthansa Cargo AG. On 31 December 2011, the company employed 436 pilots, including 19 women. At Lufthansa German Airlines and the other Lufthansa companies with flight operations, it was a total of 8,807 pilots, including 458 women.

### Cross-company Mentoring

On 28 September 2011, the starting signal was given in Frankfurt for the 13<sup>th</sup> Cross-company Mentoring. The goal of this program, which was initiated in 1998 by Lufthansa, is to support women in strengthening their leadership qualities, planning their next career steps and creating pro-

fessional networks. The intercompany program allows the creation of tandems for limited periods of time, consisting of a female employee with staff responsibility from one company and a male or female mentor from a higher hierarchical level from another company. In addition to Lufthansa, which is currently represented with seven tandems, participating companies include Deutsche Bank, Bosch and Merck. The initiative is paying off: 42 percent of the Lufthansa employees having finished the mentoring process now have a management position at the Group. Another tool for increasing the share of women among supervisors with staff responsibility is the focused identification of talented female employees among team managers, executives and in the operational areas.

### Compatibility of job and family

The compatibility of job and family is no longer a private matter. Lufthansa has supported mothers and fathers for many years with offers for child care. In 2011, the company decided to increase the number of day-care places and by 2012 their number was doubled. Another positive development is that the number of men who take parental leave to look after their children for a certain time is establishing itself across the Group.

Lufthansa employees are also not alone when it comes to looking after senior family members. In the framework of "Elder Care," they receive support from the external service provider "pme Familienservice." Numerous work-time models, which include self-planned working hours on the honor principle, also contribute to making professional and private lives more compatible with each other.



### Fathers taking parental leave – An experience to be recommended

"I have two children and took parental leave both times – an experience I highly recommend to other fathers. The months at home were not always easy, but they fostered the connections between my children and me enormously. In addition, it allowed my wife to go back to work full-time after a parental leave of 12 months, even though we were still waiting for a day-care place at that time. It was also positive that both my supervisor and my colleagues supported my decision. This was not a given because the workload was high and every employee was needed urgently."

Marcus Hellmann  
NDT-Personnel for Wheels and Brakes at Lufthansa Technik in Frankfurt



At the location in Hamburg, employees of Lufthansa Technik have benefited from a child care offer close to their jobs since early 2012. The day-care center “Kinderpropeller” offers care for up to 90 children with and without disability up to the age of six years. The center was founded in part thanks to the commitment of the charity TechnoKids, which was initialized by Lufthansa Technik employees, and a donation from company management.

### Cultural diversity

At regular intervals “KultuRraum” invites pursers and flight attendants to brush up their intercultural competencies. The focus of these continuing education events spanning several days is on the cultures of the Lufthansa core markets India, Japan, China and Korea. These trainings increase the understanding of national particularities and also impart knowledge about religion and concerning conflict avoidance.

### Cooperation between different generations

Lufthansa has looked into the phenomenon of demographic change, which affects the individual business segments and Group companies with different levels of intensity. In this context, age and the ability to perform need to be evaluated separately. For example, the employees of Lufthansa Cargo and Lufthansa Technik have a high average age. In addition, a relatively high number of these employees have physical tasks, which means higher levels of stress than their colleagues working in offices, for example. It is certain that the average age and length of working life will continue to increase. In 2011, a structural age analysis was carried out at Lufthansa Cargo, which also allows a prognosis for the years ahead. “We need to think today about how we can ensure a balanced age structure tomorrow, and how the know-how of retiring employees can be maintained for the company,” emphasizes Claus Wachenheim, Head of Human Resources at Lufthansa Cargo.

Strategic personnel planning will ensure that there will be no shortage of suitable candidates for key positions in the future. Moreover, broad-based company health management, lifelong learning, support for diversity and increasingly flexible working hours all contribute to mastering the challenges of demographic change and to securing the employability of staff. At the Group level, the topic of demographic management also has the highest priority. In 2011, the focus topics of the internal expert round, which meets regularly,



### Three questions for the new Manager Equal Opportunity

Juliane Grauer has been the new Manager Equal Opportunity at Deutsche Lufthansa AG since 1 May 2011. Previously, this qualified psychologist worked at different companies and in various areas of the Lufthansa Group – including as a consultant at Lufthansa Consulting, as a trainer at the Lufthansa School of Business, in personnel management and as a manager in the subject area “JobChange” in the department Group Personnel Policies.

#### What are the tasks of the Manager Equal Opportunity?

As Manager Equal Opportunity I develop concepts and measures that help improve equal professional opportunities for women and men within the company. One of the central elements of my work is to increase the awareness of this topic and reduce prejudices. At the moment, I assume this responsibility exclusively in Germany because management of companies outside of Germany know the local regulatory and cultural conditions much better and in part have their own contact partners for this topic. Nevertheless, we’re in close contact.

#### What makes your new job interesting and where are your current areas of emphasis?

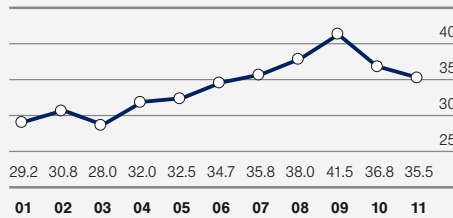
My task is indeed a real challenge. On the one hand, because there is the expectation in the political debate to have more women in management positions, and on the other because of the self-chosen obligation of the Lufthansa Group to increase the share of women among managers by 30 percent by 2020. Above all, we’ll only be able to increase the number of women in management positions if we’re able to improve the care offers for young children among other things, so that highly qualified women no longer have to choose between career and family. We’re working on this, for example by making counseling and child care offers available through the companies pme Familienservice GmbH and Medical Airport Services GmbH. In addition, we contract day-care places from external service providers within acceptable financial limits. There’s no doubt that we’ll work intensively on this topic for some years to come.

#### In which areas has Lufthansa already realized equal opportunity and where do you see need for action?

With a share of 44.6 percent the Lufthansa Group has a high share of women for the entire company. Women even dominate in service-oriented jobs, while there could be more of them in technical fields. When it comes to flexible working hours, we’re also doing very well. However, we often see that this option is far from being used by everybody. There, we still need to work on persuading people. Last but not least, we aim at diminishing traditional role concepts, so that the growing number of men who’d like to take a greater role in their families independently of their professional position have the opportunity to do so and receive the necessary support.

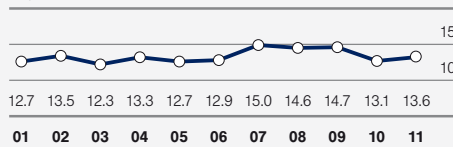
### Share of women with staff responsibility at the Lufthansa Group<sup>1,2</sup>

in percent



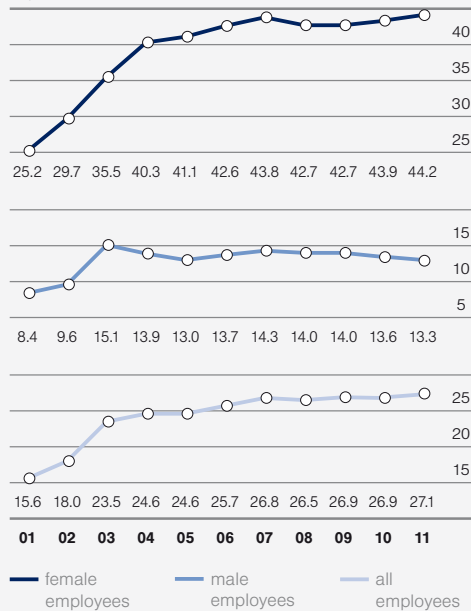
### Share of women in management positions at the Lufthansa Group<sup>1,2</sup>

in percent



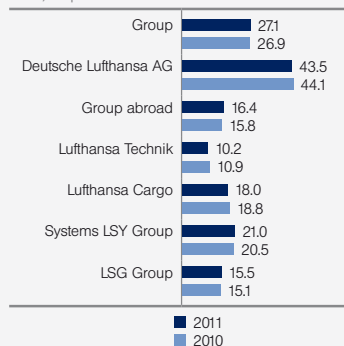
### Part-time employment at the Lufthansa Group<sup>2</sup>

in percent



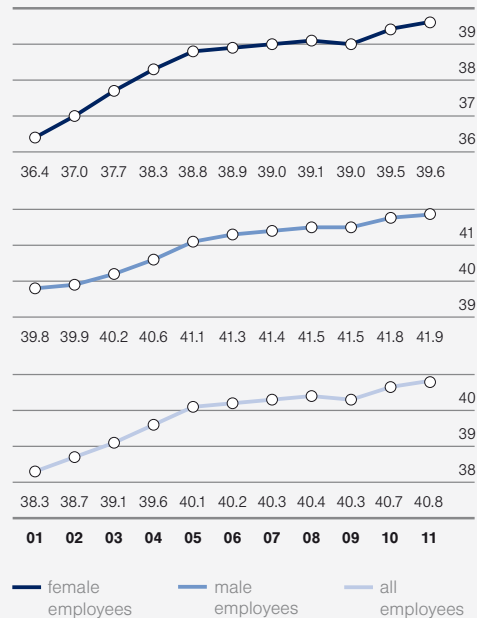
### Part-time work by Group companies<sup>2</sup>

2011, in percent



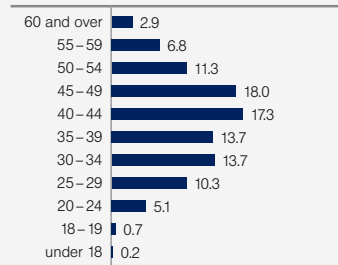
### Average age at the Lufthansa Group<sup>2,3</sup>

in years



### Age structure at the Lufthansa Group<sup>3</sup>

2011, in percent



1 Scope of consolidation without LSG outside Germany, SWISS Aviation Training, Edelweiss Air AG, SWISS European Airlines, LH Italia S.p.A., SWISS Aviation Software, Traviaustria, Lauda Air Luftfahrt GmbH, LH Malta Holding Ltd., LH Malta Aircraft Leasing Ltd., Shannon Aerospace Ltd., LH Technik Malta Ltd., LH Technik Airmotive Ireland Ltd., LH Technik Switzerland GmbH, LH Technik Budapest Repülögeb, Hawker Pacific Aerospace Inc. (US), LH Technik Landing Gear Services UK Ltd., BizJet Int. Sales & Support Inc., AirLiance Materials LLC, 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., British Midland Airways Ltd.

2 2011 do not include bmi; comparative 2010 value adjusted for bmi

3 Scope of consolidation partially without LSG outside Germany, LH Italia S.p.A., LH Malta Holding Ltd., LH Malta Aircraft Leasing Ltd., LH Technik Philippines Inc., Shannon Aerospace Ltd., LH Technik Malta Ltd., LH Technik Airmotive Ltd., LH Technik Budapest Repülögeb, Hawker Pacific Aerospace Inc. (US), BizJet International Sales & Support Inc., AirLiance Materials LLC, LH Technik North America Holding Corp., LH Malta Finance Ltd., British Midland Airways Ltd., LH Technik Landing Gear Services UK Ltd. (previously Hawker Pacific Aerospace Ltd., UK)

As per 31.12.2011



were the integration of the Group airlines and the deployability of employees with changed levels of performance.

### People with disabilities

In Germany, the Lufthansa Group employs about 2,200 people with disabilities. They make an important contribution to the company's success. Their integration is a central goal of personnel policy, which is anchored in the diversity strategy. In the reporting year, the share of employees with disabilities in Germany stood at 3.4 percent (preceding year: 3.5 percent) Group-wide. In the individual companies, their share varies between zero and 22.5 percent (LSG Stuttgart). The airlines, in particular, are faced with a more significant challenge in reaching the 5-percent quota. For flying personnel, there are only rare cases where a disability allows the status "fit to fly." The Group concentrates on optimally supporting existing strengths and competencies, and provides adapted places of work.

In 2011, Lufthansa organized numerous dialogue events to increase awareness of the specific challenges faced by colleagues with disabilities. In addition, the first Inclusion Day took place under the motto "Top in Job – Despite Disability" in March 2012 at the Lufthansa Aviation Center in Frankfurt. Numerous organizations that are concerned by the topic of disabilities – such as the Federal Employment Agency, the Center for Self-determined Life of People with Disabilities, and the Diabetes Association – were present with information stands and available for dialogue or to answer specific questions. Stefan Lauer, Chief Officer Group Airlines & Corporate Human Resources at Deutsche Lufthansa AG, specifically supported the event.

### Diversity as a subject in continuing education

Group employees find a broad range of continuing education options at the Lufthansa School of Business concerning the topic of diversity; enrollment is voluntary. This includes one-day courses involving personal participation and featuring expert lectures, learning dialogues as well as individual and group exercises to deepen the knowledge acquired. Further areas of emphasis include the six core dimensions of diversity, the conscious unlearning of prejudices and the perception of potentials.



Andreas F. Schneider of brandstage tv, satirist Rainer Schmidt, Dr. Martin Schmitt, Senior Vice President Executive Personnel at Deutsche Lufthansa AG and Dr. Jürgen Graf, Head of Lufthansa Medical Care (from left) in dialogue during the Inclusion Day.

### Disabled people at the Lufthansa Group in Germany<sup>1</sup> 2011, in percent



Overall, the employment ratio for the consolidated companies reached 3.4 percent.

There were no employees with significant disabilities at the following companies: Lufthansa Cargo Charter Agency, Jettainer, Miles & More, LSG Lufthansa Service Catering- und Dienstleistungsgesellschaft mbH and Lufthansa Flight Training Berlin.

<sup>1</sup> Share of people with significant disabilities at the consolidated companies in Germany: estimated values, based on analyses as per 31.12.2011.



# Employment policy based on partnership

## Information, consultation and participation in corporate decisions

It is a tried-and-tested company policy to clarify conflicts of interest between company management and the employee representation in an open and transparent manner. A fair approach to coexistence in all areas creates the necessary balance to advance the Lufthansa Group's position in the market.

The increasing plurality of opinions and opinion leaderships – analogous to social developments as a whole – is an increasing challenge for all parties concerned. Therefore, the guidelines for joint efforts are flexibility and the ability to react within the market.

### Partnership in collective agreements in Germany

Lufthansa employs its staff under conditions that provide them with social and material security not only during their professional lives but also afterwards. These are established on the basis of collective agreements which 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 across the Group fairly and justly – a standard that is faced with an increasingly challenging framework of conditions owing to the plurality of unions within the company.

Lufthansa agreed with the company-wide and local employee representations in July 2011 on a viable future concept for the ground staff at the stations in Bremen, Hanover, Cologne and Nuremberg. In addition to immediately implemented measures aimed at increasing efficiency, the agreement calls for phasing out certain station services step-by-step. Lufthansa guarantees its staff at these stations continued employment and thus keeps attractive professional perspectives within the company open for them.

The 2011 pay round for cockpit personnel was opened by Vereinigung Cockpit (VC), which gave proper notice concerning the collective pay agreement as per 31 March 2011. An agreement was reached as early as June. After two years without pay increases, the pilots received a pay settlement with an increase of 3.5 percent under an agreement valid until 30 April 2012.

On behalf of the ground personnel working at Deutsche Lufthansa AG in Germany, the Aviation

Employers' Association (Arbeitgeberverband Luftverkehr, AGVL) and the union ver.di agreed on 26 January 2012 on a new collective pay agreement. It calls for retroactively increasing the benchmark figures in the pay tables by 3.5 percent effective 1 January 2012. The agreement's term is 13 months. The supplement to holiday pay was increased to 1,075 euros, the pay for apprentices was increased by a flat rate of 60 euros, and other allowances and supplements were increased moderately.

The union Unabhängige Flugbegleiter Organisation (UFO), which had formed a collective pay association with ver.di only a few weeks before the negotiations, refused the offers made by the employer's side on behalf of cabin staff. As a result, negotiations were restarted in the first half of 2012 with the goal of maintaining standard pay scales.

For LSG Sky Chefs and the business segment MRO, the unions and management agreed specific rules. At LSG Sky Chefs, the key issue is to secure the competitiveness of the LSG Sky Chefs companies in Germany over the long term. In the business segment Catering, the increase from this pay round is to be used for an employment guarantee and for a one-time payment of 250 euros per full-time employee. The Lufthansa subsidiary will refrain from operations-related layoffs for the duration of the agreement negotiated during the 2012 pay round.

For the business segment MRO, the partners agreed on the key points concerning the introduction and financing of a success-related pay scale, and starting the withdrawal from a transition supplement, which has been in effect since the introduction of a new pay scale in 2007. On the one hand, this collective wage agreement reflects Lufthansa's results in 2010 and 2011. But above all, it is an acknowledgment of the employees' contribution to strengthening the Lufthansa Group's competitiveness by having agreed to a wage freeze for the period of 22 months.





After the conclusion of the arbitration process in January 2011, cabin staff were obligated to keep industrial peace until the end of the year. The interim period was used for a dialogue with the union Unabhängige Flugbegleiter Organisation (UFO) concerning urgently needed adaptations in pay structures and measures to increase competitiveness in continental traffic. While Lufthansa and UFO were able to agree on key points, a conclusive agreement could not yet be reached in 2011. The dialogue on necessary changes was restarted in the first half of 2012 in the context of the collective pay negotiations.

### Active pay and social policies also abroad

Internationalization and globalization offer comprehensive opportunities for the business and personnel processes across the Group. As a company with international operations, Lufthansa's pay and social policies are guided by the respective general conditions in individual countries. The focus is on the long-term definition of the conditions of employment, which depend on employee needs, operational requirements and the local labor market. In all countries where Lufthansa acts unilaterally, the company uses benchmarks and macroeconomic data such as inflation to assess salaries once a year for their viability in the context of the market and competitiveness. Thus, Lufthansa offers a continuous evaluation and adaptation of working conditions for its locally employed staff. In countries with high rates of inflation this assessment, which ordinarily leads to pay increases, is carried out every six months. Lufthansa also enters into pay negotiations with employee representatives in countries such as Ghana and Ethiopia, where the company has no more than 15 to 20 employees.

As a member of the UN Global Compact, Lufthansa has documented its support of the freedom of association and the right to collective bargaining for all employees worldwide. Employees in any country where Lufthansa companies are active are free to organize themselves according to legal conditions and thus participate in shaping their working conditions.

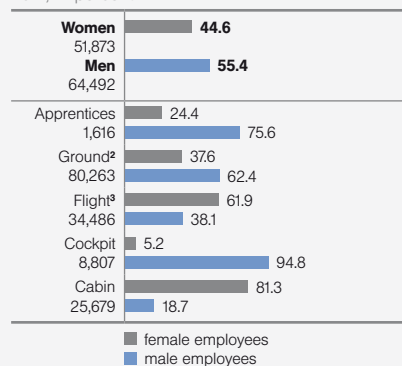
### Distribution of employees within the Lufthansa Group<sup>1</sup>

2011, changes in percent

	2011	2010	change
<b>Group employees</b>	<b>116,365</b>	<b>113,406</b>	<b>+ 2.6</b>
of which Passenger Airline Group	55,361	53,544	+ 3.4
of which Logistics	4,624	4,517	+ 2.4
of which MRO	19,975	20,159	-0.9
of which IT Services	2,820	2,935	-3.9
of which Catering	29,586	28,499	+ 3.8
of which Others	3,999	3,752	+ 6.6

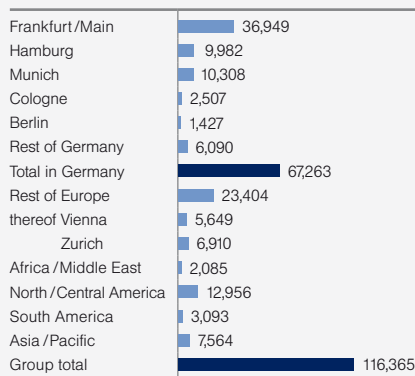
### Employees by group and gender

2011, in percent



### Lufthansa Group: Jobs around the world

2011



- 1 2011 do not include bmi; comparative 2010 value adjusted for bmi
- 2 without apprentices
- 3 consists of cockpit and cabin

As per 31.12.2011



### Seventh employee survey with record participation

Lufthansa has counted for many years on regular employee surveys to establish the level of identification with the employer, weak areas or work satisfaction. In 2011, the seventh edition of "Employee Feedback Management" (EFM) took place. Worldwide, 23,464 employees at Lufthansa German Airlines and in Group functions seized the opportunity to participate in capturing this "mood snapshot." Participation reached 63.9 percent, its highest value so far (2008: 52.8 percent), which corresponds to an increase of 20 percent. "This is a considerable level of advance trust," says Matthias Borchers, Vice President Personnel Development Lufthansa German Airlines.

In comparison with the previous employee survey in 2008, the employees of Lufthansa German Airlines were more satisfied with their salaries and communications than their colleagues in Group functions. There were also differences concerning the subject area "Learning & Innovation," which the employees of the operations-related areas rated more favorably than those in administration. "The feedback from employees must be taken seriously by managers," Borchers emphasizes. For this reason, it is every department's task to enter into a dialogue and join forces to launch improvements.

### Leadership feedback from employees

Specific feedback concerning their leadership performance was given in 2011 to managers at Lufthansa Technik, Lufthansa Technik Logistik, Lufthansa Technik Maintenance International and Lufthansa LEOS as part of the initiative "Great Place to Work®." The survey's goal was to improve the way of working together within the company, to launch dialogues about the work situations within teams and to optimize them with appropriate measures if needed. The leadership feedback was given on the intranet by means of questionnaires, which the employees could complete anonymously. The survey was accompanied by information events for the 1,640 managers at the participating companies. Once the survey results were available, evaluation discussions took place between supervisors and employees to form the basis for determining concrete action areas and measures.

### Employee representation at the European level

Over the past years, the Lufthansa Group has established itself as an employer with about 23,000 employees in Europe, but outside of Germany. At home, it is the task of the works councils, the personnel representatives, the employee representatives on the supervisory boards and the unions to strike a balance between the different interests of employers and employees. However, such a multipart system does not exist in all European countries.

Since 1996 Lufthansa has met these legal requirements in the framework of the Group's industrial relations agreement "EURO-Info" with a specific extension of the Group Economic Committee for cross-national issues. In accordance with the codetermination committees, the company has taken advantage of the option to agree on a setup that is better adapted to Lufthansa's specific conditions. This regulation (art. 13 "Agreement"), which protects existing rights, makes the election of a European works council unnecessary. It provides, among other measures, that representatives of company management teams, works councils, cabin crews and foreign companies work together and participate in at least one meeting per year of the Group Economic Committee.

### JobChange – Paths toward new professional perspectives

The Lufthansa Group pursues a long-term personnel policy that gives high priority not only to operations-related requirements but also to the interests and concerns of its employees. It has always been an important consideration for the aviation group to create secure jobs that provide a long-term professional perspective. Nevertheless, business-related restructurings cannot always be avoided, and so it was in 2011. In such cases, Lufthansa has successfully counted on the job placement system JobChange to adapt staff capacities as socially compatibly as possible and to assume its responsibility for these employees during the process of change.



# Corporate training and continuing education

## Knowledge secures the future

The more qualified the Lufthansa Group's employees are, the more successful the Group can be in competition. For this reason, the aviation company has offered a broad range of professional and interdisciplinary training and continuing education options – even in times that were economically difficult.

As an employer who acts responsibly concerning social and civic issues, Lufthansa hired 808 young people in 53 training professions in 2011 in Germany.

### **The Lufthansa School of Business (LHSB)**

Germany's first corporate university has been responsible for the need-oriented qualification of employees and managers across the entire Group since 1998 – across all age brackets. In doing so, it interlinks the individual qualification of employees with the company's development and thus contributes to tackling necessary processes of change at the Group successfully. "Last year showed again that the investments in the development and continuing education of our employees and managers are paying off," says Ulrike Schlosser, Head of Lufthansa School of Business. "Therefore, we will continue this strategy in 2012 as well."

### **Professional perspective with a future**

The LHSB's spectrum comprises tailor-made trainings, management programs as well as network and dialogue platforms. Together they form the basis for the professional development of managers, the cooperation within teams and the implementation of the Group's strategy. Moreover, the institution cooperates with selected international business schools and academic organizations. For its partnership with the Lancaster University Management School and McGill University in the framework of the "International Master's Program in Practicing Management" (IMPM), Lufthansa was awarded a prize by the European Foundation for Management in 2011.

### **Talent management's focus:**

#### **The best in their field**

Lufthansa searches continuously for highly-qualified young employees. The close cooperation with universities and technical universities plays an important role in this context. For example, as part of its university marketing, the company is regularly present at internship fairs, participates in workshops, and provides speakers.

Selected students also have the opportunity of getting to know the aviation group firsthand during the annual "Experience Lufthansa" days.

Furthermore, in 2011 Lufthansa and the Aviation Management Institute at the EBS Business School organized the second edition of the "Lufthansa Case Challenge." A total of 189 teams from more than 25 countries participated in the academic competition for bachelor's and master's students. The competition, which focused on the topic of sustainability, aims at gaining impulses from the academic environment for practice-related issues. The six groups with the most innovative concepts reached the final and thus had the opportunity to present their ideas to a jury comprising Lufthansa top managers and EBS experts. The patron of the "Lufthansa Case Challenge" is Sadiq Gillani, Senior Vice President Corporate Strategy at Deutsche Lufthansa AG. In 2012, the competition's topic is innovation in the aviation industry.



"Last year showed again that the investments in the development and continuing education of our employees and managers are paying off."

Ulrike Schlosser  
Head of Lufthansa School of Business  
Deutsche Lufthansa AG



The finalists of the "Lufthansa Case Challenge" 2011 together with the jury

### **Unfailing: Lufthansa's attractiveness as an employer**

For many years, Lufthansa has been ranking among the most popular employers in Germany. Regular top spots in the key employer rankings prove that the investments in development and continuing education of employees and managers are paying off. In 2011, Lufthansa was again honored as one of the most preferred employers: For the fifth time in a row, the company was ranked in the top group of German companies in the business section of the Universum Student Survey 2011. The aviation group's high level of attractiveness is also reflected in the number of job applicants. In 2011, about 155,000 job seekers applied for 6,000 vacancies that the company had posted. There was also great interest in [www.Be-Lufthansa.com](http://www.Be-Lufthansa.com). In the reporting year alone, on average more than 210,000 viewers per month visited the Group's job and career portal, which has had its own presence on Facebook since April 2010. With about 25,000 fans – that is twice as many as in 2010 – it has developed into one of the most popular career portals of German companies in this social network.

### **Playful way into the working world**

Since the beginning of 2012, Lufthansa has presented for the first time a captivating and innovative tool for young people on [www.Be-Lufthansa.com](http://www.Be-Lufthansa.com), designed to help them find a suitable professional start at the company. The "Professional Orientation Game" is aimed at pupils from 14 years of age and high-school graduates who are interested in a professional training or a course of study. The goal is to explore one's own strengths in a playful manner, to find appropriate training options at Lufthansa and to gain an impression of the working environment in this way before making a decision. The use of the game is free of charge and anonymous.

In the same way, the annual students' information days "Fascination Lufthansa" serve the purpose of giving firsthand knowledge about the numerous training and study options at the Group to young men and women who are at the start of their professional lives. On 12 dates throughout the year at the Lufthansa Training & Conference Center in Seeheim, the information days provide insights into the multifaceted range of jobs in the aviation industry – including specialist for air transport services, flight attendant, pilot, technical and business-oriented professions as well as those in the area of hospitality.

### **International focus on recruiting young employees**

Lufthansa offers university graduates an attractive professional start with the "ProTeam General Management Trainee" program. In the first month of this international initiative, the participants learn in presentations and hands-on activities in different company areas about the Group's great variety. This is followed by project stints in Germany and abroad; in a parallel move, trainings and workshops take place to accompany the personal development of the young employees. In 2011, Lufthansa hired 12 ProTeam trainees, of whom 30 percent have an international background.

Another initiative that generates more internationality at the Lufthansa Group is the company-wide program "explorers." Its eighth edition, which was launched in November 2011, counts 147 participating young managers from all Group companies. The "explorers" platform serves the individual development of professional and personal competencies, the creation of one's own networks within the Group and the promotion of international cooperation between the Group companies.





# Employee health and safety protection

## Enterprise “health”

Healthy, committed and performance-oriented employees are a fundamental condition for the Lufthansa Group to maintain its position in international competition successfully in the future as well. Accordingly, the protection of employee health and safety enjoys a high priority within the company.

In 2011, the steering committee “Strategic Health Care Management,” led by Monika Rühl, Director Change Management and Diversity, took a close look at the question of what is more sensible: To aim prevention primarily at individual employees – as has been the case so far – or to shape health care management to address the organization’s issues more directly in future as well. The result will be a guideline based on the WHO’s definition describing health as “physical, psychic and social well-being.” This approach also indicates which measures will have to be implemented in the areas of work organization, leadership, work-life balance and corporate culture.

### Medical Service

One key position in the health and prevention concept of Deutsche Lufthansa AG is the Medical Service, headed by Professor Uwe Stüben. Its physicians in occupational, aviation and tropical medicine are available to employees with health problems – in close cooperation with Group Employee Safety, the internal social counseling service and the health experts at the Group companies. To promote interdepartmental exchanges about health-related topics, the Working Group Health meets four times a year. Its members are representatives of the Medical Service, Employee Safety, Social Counseling as well as Personnel and Health Management.

In 2011, the Group again supported its employees with varied offers concerning health prevention and promotion. This included back training courses, programs to quit smoking, screenings to prevent chronic illnesses, inoculations, advice on reducing stress and preventing addictions. Numerous individual campaigns for cabin crews in Frankfurt and Munich on focus topics such as feet, sleep or nutrition complemented the offers. Regular articles on the intranet and in the staff newspaper “Lufthanseat” provide information about the broad range of these options.

### Firmly established: Health week at the Lufthansa Aviation Center

Regularly organized health days and weeks are very popular with Lufthansa employees. For this reason, numerous campaigns again took place in 2011 at the Group locations in Germany with the aim of promoting employee health. This included the health week at the Lufthansa Aviation Center in Frankfurt from 15 to 18 August 2011. Emphasis was placed on the topic “Burned out? – Fill up!” to give Lufthansa employees the opportunity to learn in detail about causes and symptoms of stress and burnout, and about appropriate ways of handling stress. The program also included presentations and campaigns on the topics of diagnosis and ergonomics, nutrition and exercise as well as stress management and work-life balance. These activities were organized in cooperation with the Medical Service, the Lufthansa Sports Association, Employee Safety and Social Counseling as well as external partners.



Health week 2011: Information stand of the Medical Service at the Lufthansa Aviation Center.





In May 2011, the Cargo-fit health truck rolled its way across Germany.

### “Keep up” health days for station employees

The “Keep up” health days opened their doors for the third time on 28 and 29 September 2011 in Frankfurt, this time under the motto “Healthy in all senses.” The highlight of this event, designed for employees at the station, was the “Age Explorer,” a large-scale protective work suit. This simulator makes it possible to experience age physically and emotionally, and thus increases the understanding for older customer groups and their needs through personal experience. Sensory perception such as seeing, hearing, tasting and smelling were not neglected either and were the subject of numerous information stands and campaigns, including eye and hearing tests.

### Campaign week to promote responsible consumption of alcohol

To inform without demonizing – that was the goal of the Campaign Week Alcohol, realized by the Group’s Social Counseling from 23 to 27 May 2011 at the locations in Frankfurt, Cologne, Munich and Hamburg. The occasion was the Germany-wide campaign “Alcohol? Less is better!” by the German Central Office for Addiction Issues, which Lufthansa actively accompanied with information and campaign stands. “It is our concern to make employees and managers aware of the effects of alcohol – as set out in the ‘Addiction Guidelines of the Lufthansa Group’ – and to increase awareness of risky consumption patterns and to inform about the development of addiction,” explains Birgitt Erb, employee at Lufthansa Social Counseling. Opportunities to experience the effects of alcohol were provided by “drunkenness goggles,” which simulate how alcohol changes perceptions and affects the ability to react and perform. The offers were complemented by an information course and a driving simulator as well as performances by a cam-

paign theater in Frankfurt. Patron of the event was Stefan Lauer, Chief Officer Group Airlines & Corporate Human Resources at Deutsche Lufthansa AG.

### Fit on the job – Health day at headquarters in Cologne

Balanced nutrition and sufficient exercise are indispensable for maintaining health. Accordingly, the health day on 12 April 2011 at headquarters in Cologne focused on asking how lifestyle-related risks can be identified and avoided, and which options are available to effectively counteract specific burdens caused by modern work environments. Employees were keenly interested in information offered by Weight Watchers, back massages, health checks offered by the Medical Service, a “drunkenness goggles course” as well as information stands and campaigns on the topics of exercise, sports, nutrition, stress management and relaxation.

### “Cargo-fit on tour”

For two weeks in May 2011 the Cargo-fit health truck made its way through Germany as part of the “Cargo-fit on tour” campaign. During its “pit stops” at the stations in Munich, Nuremberg, Stuttgart, Düsseldorf, Cologne, Frankfurt, Hanover, Bremen, Hamburg, Norderstedt and Berlin, Lufthansa Cargo employees received valuable health tips and individual fitness plans. Very popular were the back check and the force plate in particular. Apart from visiting a broad range of information and test stands provided by numerous internal and external health-care providers, employees also had the opportunity to do something good for their health by cycling on a stationary bike. Under the motto “We bike to Africa” Cargo employees covered a total distance of 6,360 flight kilometers (cycled kilometers multiplied by 10) – more than is covered by the entire Tour de France. Lufthansa Cargo’s management turned the kilometers pedaled into a donation of 3,180 euros for the Kenyan orphanage Mothers’ Mercy Home, which has been supported by the humanitarian help organization Cargo Human Care for many years (see “Cargo Human Care – Medical help for people in East Africa” on page 96).



### **Metabolic syndrome: Long-term study of Lufthansa Technik with Hamburg University**

One in six Europeans is affected by metabolic syndrome, in some EU countries it is even one in three. The syndrome's characteristics are a combination of excess weight, diabetes mellitus (type 2), high blood pressure, increased blood lipid concentrations and increased risk of cardiovascular diseases. This is reason enough for Lufthansa Technik and the Medical Service of the Lufthansa Group to join forces with the University Clinic Eppendorf and Asklepios Clinics Hamburg to conduct a long-term study to investigate the conditions in the development of diabetes, which affects about 8 million people in Germany alone. "A key goal of this study is to identify very early indications of a disturbed blood sugar metabolism by means of regular medical examinations, and to prevent the development of diabetes mellitus by means of resolute changes in nutrition and lifestyle as well as with medications, if needed," says Anja Knotte, HR Manager Personnel & Social Policies at Lufthansa Technik. The starting signal for the ten-year "Lufthansa Prevention Study" (LUPS) for the early identification of metabolic illnesses was given at the end of 2008 with the participation of the Medical Service. The first round of examinations drew 1,962 employees between the ages of 25 and 60 years at Lufthansa Technik, Lufthansa Revenue Services and Lufthansa ground personnel at the Hamburg location as well as their relatives. The first follow-up check took place in November 2011.

### **Social counseling**

Nobody is safe from crisis and conflict situations. To ensure that such situations do not impact either the working climate or work performance, the Lufthansa Social Counseling Service at the locations in Frankfurt, Hamburg, Cologne and Munich has given support to affected employees in tackling private and professional challenges since the mid-1980s. In addition, the service's representatives were again actively involved in the company's health management in 2011. They took part in the steering committee "Strategic Health Management," which among other things developed the Guidelines for the Corporate Health Management of the Lufthansa Group, and thus in numerous health campaigns initiated by the company.

### **Corporate reinsertion management**

Cancer, depression, severe disability: There are many reasons why employees are unable to work for longer periods of time. In such cases, the corporate reinsertion management smooths the path toward a return to work for employees who are ill for more than six weeks during a 12-month period. At the end of 2011, Lufthansa physicians discussed options for the professional reinsertion in work processes with 30 medical doctors of different specialties, representatives of health insurance companies, pension funds and social counseling services at hospitals. This expert exchange between physicians and social services providers, which was offered as a continuing education event in Frankfurt, was hosted by Dr. Roland Nowak of Lufthansa's Medical Service.

### **Employee safety: Organization and tasks**

To prevent work-related accidents and illnesses uncompromisingly – that is the focus of employee safety at Lufthansa. The Group department Employee Safety is responsible for coordinating activities and continuously developing measures related to work safety. It fulfills this task in close coordination with physicians, social counselors and experts at the Group companies. The goal is to identify possible hazards at an early stage, to assess them and to implement measures to reduce the number of accidents continuously. A further goal is to reduce the risk of work-related illnesses and other hazards associated with work to a minimum or to eliminate them.

# Facts 2011 and outlook 2012 (selection)

Area	Facts 2011	Outlook 2012
<b>Training</b>	<ul style="list-style-type: none"> <li>At the end of 2011, more than 2,500 people participated in training and qualification measures. Concurrently, Lufthansa hired 808 new trainees and students in dual courses of training during the reporting year.</li> <li>In 2011, the Group trained and hired more than 4,900 service professionals, who work predominantly as flight attendants and in passenger handling.</li> <li>In 2011, Lufthansa Flight Training GmbH in Bremen signed contracts with 268 new trainee pilots. Thus, the total number of future pilots increased by 12 percent compared with the preceding year.</li> </ul>	<ul style="list-style-type: none"> <li>For the Lufthansa Group, intensive, needs-oriented training will continue to play a central role in securing qualified junior staff.</li> <li>In this process, Lufthansa increasingly takes into account changes made by many universities and colleges (e.g. the standard of bachelor's degrees).</li> <li>The training portfolio is thus subject to permanent change.</li> </ul>
<b>Continuing education / employability</b>	<ul style="list-style-type: none"> <li>Despite economically demanding times, Lufthansa offered comprehensive educational measures in 2011 as well.</li> <li>The Lufthansa School of Business (LHSB) emphasized the optimization of interdisciplinary training across the entire Group. In this context, the product offer was expanded to include the employees of the Group airlines as well.</li> <li>Overall, the internal budget for education increased by 21 percent to 123 million euros. The number of participant days increased by 10 percent to 681,000. The LHSB's topic of the year – "Modern Working World" – gave participants the opportunity to investigate the related challenges and, based on concrete examples, formulate measures than can be directly implemented.</li> <li>As a future-oriented company, Lufthansa advanced the design of digital learning environments in 2011 as well, including in the areas of corporate compliance and corporate responsibility.</li> </ul>	<ul style="list-style-type: none"> <li>For Lufthansa, comprehensive training and continuing education activities remain essential to secure the company's competitiveness in the future as well. At the same time, the Group makes an important contribution in this way to meeting its obligations as a socially responsible employer.</li> <li>Given the importance of lifelong learning, Lufthansa will continue to support its employees in gaining qualifications while working, based on a wide-ranging continuing education offer.</li> <li>The LHSB's topic of the year 2012 is "Overcoming Boundaries." This voluntary continuing education offer reflects the company's need to come to terms with demographic developments in Germany. At the same time, it aims at the employees' individual flexibility and willingness to change.</li> <li>Furthermore, the Lufthansa School of Business is planning to intensify its cooperation with the Lufthansa Training &amp; Conference Center Seeheim, which is also headquarters of the LHSB.</li> </ul>
<b>Job safety and health protection</b>	<ul style="list-style-type: none"> <li>The company's health protection activities play a decisive role in guarding against the specific stresses from the modern working world in a consistent manner. Against this background, the Group companies organized again in 2011 a broad range of health measures, such as information and campaign stands, presentations and trainings for the flying personnel and the staff on the ground.</li> <li>Furthermore, the Group further developed job safety on a continuous basis and introduced Web-based trainings on job safety and health protection.</li> <li>Redesign of the job safety trainings for future pursers and follow-up trainings for the job safety commissioners.</li> <li>Following the reactor accident at Fukushima, immediate measures were implemented by Group Job Safety to protect the flying personnel and the local employees as well as the employees of Group companies sent abroad.</li> <li>For concerned passengers and flight crews, Lufthansa provided the possibility at Frankfurt Airport – at the recommendation of the Ministry for the Environment of the state of Hessen – to have a voluntary exam for possible exposure to radiation.</li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive expansion of the focus topic "Health Management" for all employee groups – Group-wide and differentiated by company.</li> <li>Intensification of exchanges between Group airlines concerning the topic of job safety.</li> <li>Expansion of the Web-based training offers concerning job safety and health protection.</li> </ul>
<b>Demographic change</b>	<ul style="list-style-type: none"> <li>Expansion of the steering committee and inclusion of the Group airlines</li> <li>Focus on changed performance</li> </ul>	<ul style="list-style-type: none"> <li>Modernization of the corporate pension systems</li> </ul>
<b>Diversity</b>	<ul style="list-style-type: none"> <li>With the focus topic "Women" the LHSB addressed the further development of equal opportunity in 2011 within the Group.</li> <li>Special seminar offer on the subject of diversity</li> <li>The Lufthansa Group has set itself the goal of increasing the share of women in upper management by 30 percent by 2020 (growth rate "Plus 30 percent")</li> <li>Information stands on the topic of intercultural competency for flight attendants</li> <li>For further facts see on page 49.</li> </ul>	<ul style="list-style-type: none"> <li>Start of the Group-wide project "Management Landscape 2020." Its goal is to realize more flexibility and diversity at all management levels and among junior staff members across the entire Lufthansa Group (see on page 46).</li> <li>Continuation of the seminar offer on the subject of diversity</li> <li>Expansion of child day-care places to improve compatibility of work and family</li> <li>Specific support for intercultural competencies, including a "Day of Cultures," among other measures.</li> <li>1<sup>st</sup> Lufthansa Day of Inclusion for employees with and without disabilities in March 2012.</li> <li>The topic of the year 2012 of the LHSB is "Overcoming Boundaries" (also see Continuing education / employability)</li> </ul>
<b>Dialogue with employees</b>	<ul style="list-style-type: none"> <li>The Lufthansa Group organizes regular dialogue events to learn more company-wide about the expectations, wishes and needs of employees working in the cabin and on the ground in particular. Examples are decentralized Town Meetings and employee events on specific topics. In addition, the recurring employee survey "Employee Feedback Management" ("EFM") serves as an important barometer of moods</li> </ul>	<ul style="list-style-type: none"> <li>Continuation of the employee dialogues</li> <li>The employee survey "Employee Feedback Management" will take place annually from 2012.</li> </ul>
<b>Dialogue with social partners</b>	<ul style="list-style-type: none"> <li>The Lufthansa Group has been able to solve and successfully balance competition-induced distribution conflicts by means of constructive arbitration dialogues.</li> <li>Lufthansa accompanied the elections of employee representatives for the flying personnel and ensured a smooth process; in addition, the company supported the employability and qualifications of the new employee representatives.</li> <li>Start of the dialogue on the need for changes at the company with regard to expected deep-rooted structural changes within the industry.</li> </ul>	<ul style="list-style-type: none"> <li>Lufthansa intends to continue to defuse competition-induced distribution conflicts by means of intensive dialogue and constructive solution options in the future as well.</li> <li>Continuation of the social dialogue based on partnership with regard to the need to make operational changes at the company.</li> </ul>

# Climate and Environmental Responsibility



Kerosene and emissions

Biofuel

Fuel efficiency

Air traffic management

Emissions trading system

Environmental management

Noise emissions

Research projects



# Kerosene and emissions

## Specific kerosene consumption: Lufthansa Group sets new efficiency record

The specific kerosene consumption of the Lufthansa Group fleet continues to decline: After having already reached the lowest level in the company's history in 2010 at 4.20 liters per 100 passenger kilometers, it sank even further in 2011 – by 0.4 percent to 4.18 liters per 100 passenger kilometers. Concurrently, the specific CO<sub>2</sub> emissions fell by 0.4 percent to 10.53 kilos per 100 passenger kilometers.

The reasons for the recent reductions of specific kerosene consumption and emissions levels are the continuous and intensive efforts to improve fuel efficiency across the entire Group (see “Fuel efficiency at the Lufthansa Group – Cutting costs and protecting the environment” on page 70). This positive effect is all the more remarkable, as the Group-wide seat load factor decreased by 2.0 percentage points in 2011 to 77.6 percent. Among the Group companies, SWISS and Austrian Airlines were again able to lower their specific kerosene consumption slightly to 3.72 liters and 4.18 liters per 100 passenger kilometers respectively.

In absolute terms, the kerosene consumption of all regular flights operated by the Group (which means all scheduled and charter flights) increased in 2011 by 6.7 percent to 9.024 million tonnes. At the same time, the number of passenger kilometers increased by 8.3 percent, illustrating once again the improvement in fuel efficiency that has been achieved. This development also meant that the Group's transport performance and its fuel consumption in passenger transport were successfully decoupled further. The transport performance of the Lufthansa Group has grown by 328 percent since 1991, while kerosene consumption and CO<sub>2</sub> emissions have increased by 188 percent (see graph on page 65).

### Fuel dumps: Safety comes first

To ensure the safety of passengers and crews, fuel dumps under exceptional circumstances cannot be avoided. Given the high levels of technical aircraft maintenance, they occur exceedingly rarely at the Lufthansa Group. Yet no airline in the world is entirely free of them. When pilots are forced to make an unscheduled landing for technical or medical reasons, they first need to empty the fuel tanks until the aircraft's maximum permissible landing weight is reached. Fuel dumps affect only long-haul flights. In 2011, there were 15 cases of fuel dumps (see graph on page 65).

### Specific fuel consumption, passenger transportation 2011

Average specific fuel consumption in l/100 pkm (center of circle) and shares of different traffic areas (segments) in total fuel consumption for passenger transportation, active fleet 2011

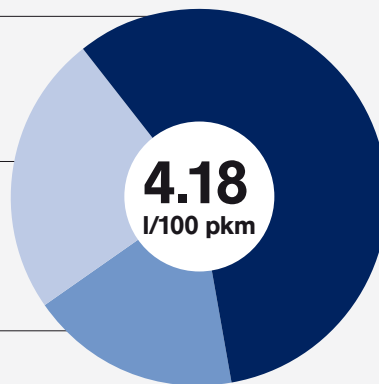
Definitions of traffic areas:  
Long-haul more than 3,000 km  
Medium-haul 800 to 3,000 km  
Short-haul less than 800 km

#### Group fleet

Long-haul (58%)  
3.64 l/100 pkm

Medium-haul (26%)  
4.52 l/100 pkm

Short-haul (16%)  
7.30 l/100 pkm

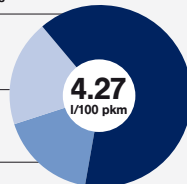


#### Lufthansa German Airlines

Long-haul (64%)  
3.80 l/100 pkm

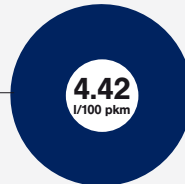
Medium-haul (19%)  
4.55 l/100 pkm

Short-haul (17%)  
7.21 l/100 pkm



#### Germanwings

Medium-haul (100%)  
4.42 l/100 pkm

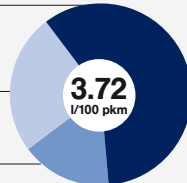


#### SWISS

Long-haul (59%)  
3.15 l/100 pkm

Medium-haul (25%)  
4.21 l/100 pkm

Short-haul (16%)  
7.56 l/100 pkm

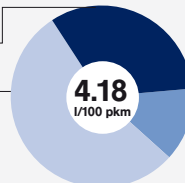


#### Austrian Airlines

Long-haul (33%)  
3.02 l/100 pkm

Medium-haul (54%)  
4.78 l/100 pkm

Short-haul (13%)  
7.69 l/100 pkm



### Specific CO<sub>2</sub> emissions, passenger transportation active fleet in 2011; in kg/100 pkm

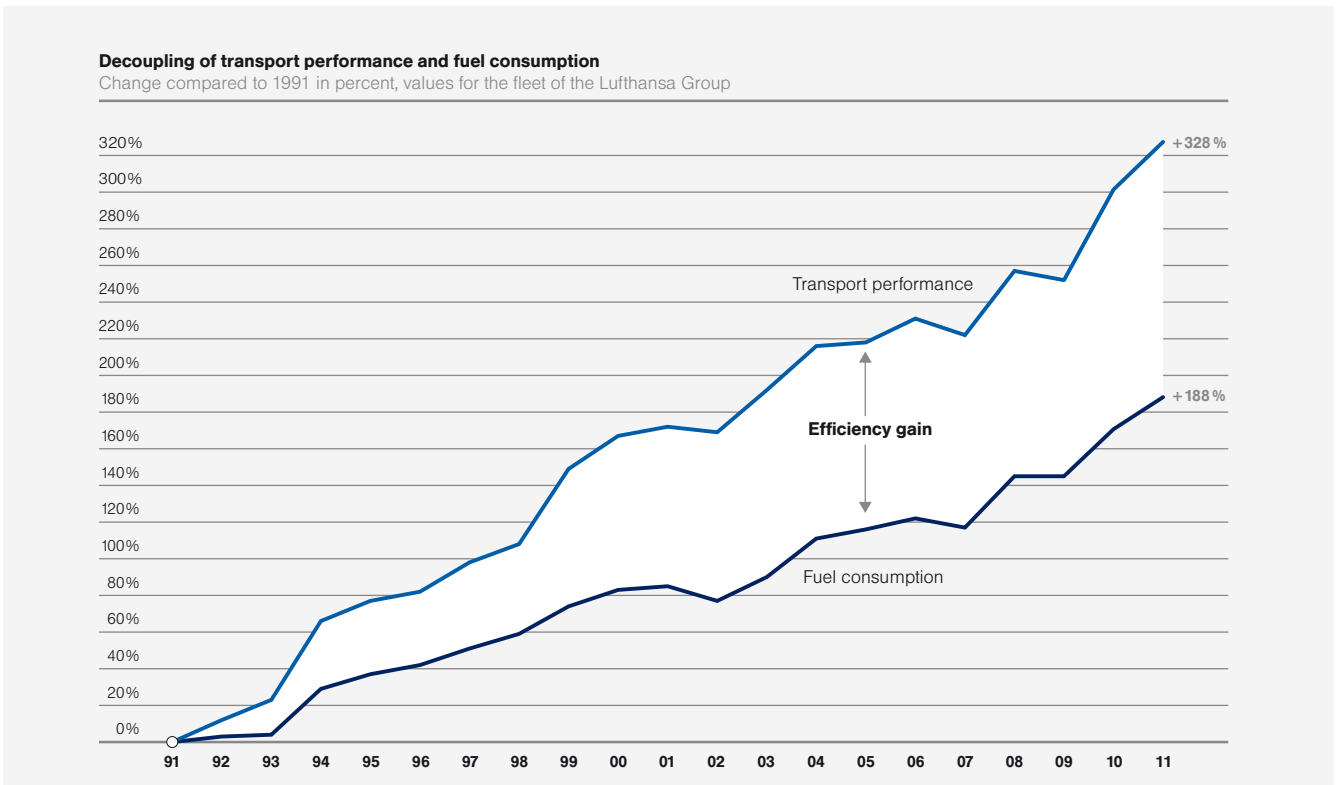
	Group fleet	Lufthansa German Airlines	Germanwings	SWISS	Austrian Airlines
Long-haul	9.17	9.58	–	7.93	7.60
Medium-haul	11.39	11.46	11.14	10.60	12.04
Short-haul	18.39	18.18	–	19.05	19.38
<b>Total averages</b>	<b>10.53</b>	<b>10.77</b>		<b>9.39</b>	<b>10.54</b>







The Boeing 747-8 Intercontinental will help Lufthansa achieve further successes in the area of fuel efficiency. This wide-body aircraft is 15 percent more fuel-efficient than its predecessor model, the Boeing 747-400.



<b>Fuel dumps</b>		changes	
2011		compared to 2010	
<b>Events, total</b>	15		-7
thereof medical reasons	5		-1
technical reasons	9		-7
other reasons	1		+1
<b>Quantity, total</b>	527 tonnes		-12.9%

<b>Specific fuel consumption, passenger transportation</b>			
in liters/100 passenger kilometers			
	2011	2010	change in %
Group fleet	4.18	4.20	-0.4
Lufthansa German Airlines	4.27	4.25	+0.5
Germanwings	4.42	--	--
SWISS	3.72	3.73	-0.1
Austrian Airlines	4.18	4.21	-0.6



### Fuel consumption<sup>1</sup>

2011 (in tonnes)

	passengers	freight	total	share
<b>Scheduled flights<sup>2,3</sup></b>				
Lufthansa	4,951,029	1,797,786	6,748,815	(73.3%)
Germanwings	237,486	865	238,351	(2.6%)
SWISS	990,674	350,565	1,341,239	(14.6%)
Austrian Airlines	598,287	96,979	695,266	(7.5%)
			<b>9,023,671</b>	(98.0%)
Third parties <sup>4</sup>	157,067	18,211	175,278	(1.9%)
<b>Other flights<sup>5</sup></b>			11,681	(0.1%)
<b>All flights</b>			<b>9,210,630</b>	(100.0%)

### Emissions<sup>3,6</sup>

2011 (in tonnes)

	passengers	±2010	freight	±2010	total	±2010
<b>CO<sub>2</sub></b>	21,349,054	(+78%)	7,075,514	(+3.4%)	28,424,568	(+6.7%)
<b>NO<sub>x</sub></b>	100,103	(+9.7%)	33,800	(+2.8%)	133,903	(+7.9%)
<b>CO</b>	16,660	(+6.1%)	3,492	(+3.7%)	20,152	(+5.7%)
<b>UHC</b>	1,766	(+8.4%)	487	(+3.2%)	2,253	(+7.3%)

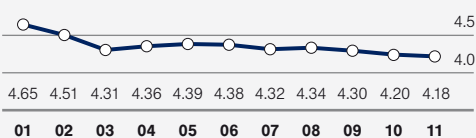
### Share of third parties<sup>4</sup>

2011

<b>Flights</b>	3.7%
<b>Passengers</b>	3.0%
<b>Tonne kilometers transported, TKT<sup>7</sup></b>	1.3%
<b>Fuel consumption</b>	1.9%
<b>Carbon dioxide emissions</b>	1.9%

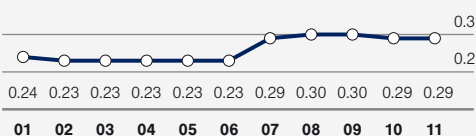
### Specific fuel consumption, passenger transportation

in liters/100 passenger kilometers



### Specific fuel consumption, freight transportation<sup>8</sup>

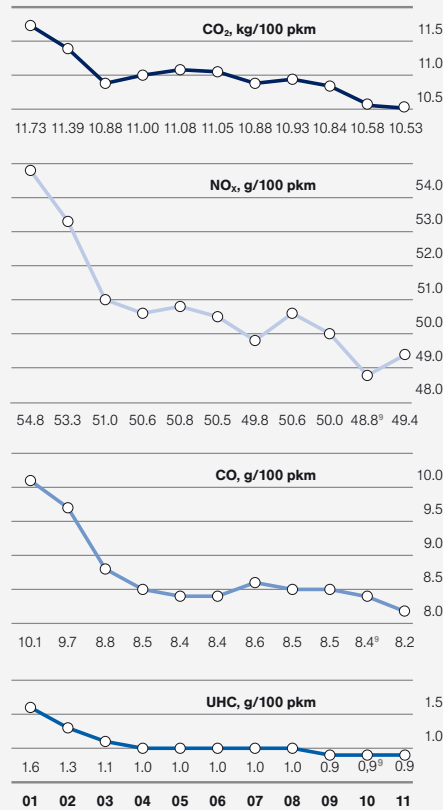
in liters/tonne kilometer



- 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 and holding patterns and detours in the air.
- Scheduled flights, charter flights.
- For the reporting year 2011, the following companies have been included in *Balance*: Lufthansa German Airlines (including Lufthansa Italia and Lufthansa Regional: Lufthansa CityLine, Air Dolomiti, Eurowings, Contact Air, Augsburg Airways), Lufthansa Cargo, SWISS (including Edelweiss Air), Austrian Airlines and Germanwings, Excepted are third-party services, as Lufthansa has no influence either on their performance or on the aircraft they operate (see table "Share of third parties").
- 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.
- Ferry flights, special flights, training flights, test flights, aborted flights.
- Absolute emissions in tonnes resulting from flight operations (all scheduled and charter flights). Recorded are emission values from gate to gate, i.e. including taxiing on the ground and holding patterns and detours in the air (see "About this report - Methodology of calculations" on page 5).
- Excludes road feeder service and partial capacity chartered by Lufthansa Cargo, as no fuel consumption and emissions values are available for this performance.
- On the basis of freight tonne kilometers (FTKT), transported on both cargo and passenger aircraft.
- Value corrected, due to a calculation error.

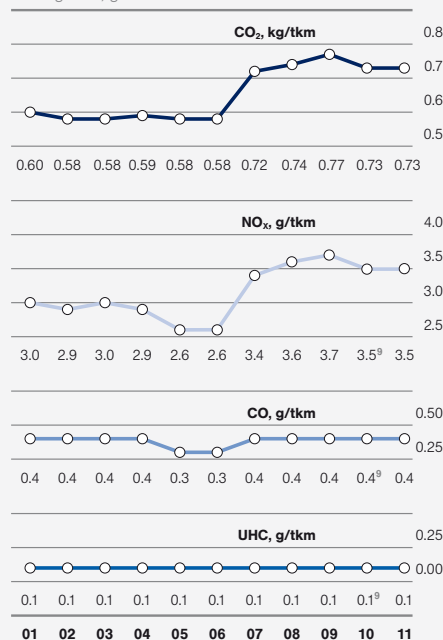
### Specific emissions, passenger transportation

in kilograms, grams/100 passenger kilometers



### Specific emissions, freight transportation<sup>8</sup>

in kilograms, grams/tonne kilometer



## Long-term trial of biofuel – On track for the air transport of the future

Lufthansa successfully concluded the trial use of biofuel in regular flight operations for just under six months. In all, a total of 1,187 biofuel flights were operated between Hamburg and Frankfurt from 15 July to 27 December 2011. This long-term practical trial is now being followed up with a two-year research phase to analyze the generated data and derive new insights.



What may look unspectacular at first sight is in reality a huge step towards the future of air transport. Advancing globalization and a growing world population create ever-greater demand for mobility. Demand that cannot be satisfied long-term in environmentally compatible ways if the finite resources of fossil fuels continue to be the only available option. This makes the search for environmentally compatible alternatives one of the greatest challenges of our times. Experts believe that biofuels have a significant potential, especially in air transport. Although the combustion of biofuel or conventional kerosene releases an identical amount of CO<sub>2</sub>, biofuel's significant advantage is linked to the CO<sub>2</sub> cycle. Plants absorb CO<sub>2</sub> from the atmosphere by means of photosynthesis, which is released back into the atmosphere during the combustion process. Biofuel emits about 50 percent less CO<sub>2</sub> than conventional fossil fuels. Its use is, therefore, an element of air transport's established four-pillar strategy, aimed at reducing net CO<sub>2</sub> emissions by 50 percent by 2050, compared with the year 2005.

The Lufthansa Group has tackled this task squarely by testing biofuel in regular flight operations for just under six months in the framework of a project called "burnFAIR." This is extremely

important research, because thus far little meaningful data could be generated regarding the use of alternative fuels in aviation.

### **Eight flights a day between Hamburg and Frankfurt**

With this long-term trial, Lufthansa performed pioneer work. From 15 July to 27 December 2011, an Airbus A321 completed eight flights a day between Hamburg and Frankfurt. One of the aircraft's two engines was operated with fuel containing up to 50 percent of biosynthetic kerosene – the maximum mix permitted – produced by the Finnish petroleum company Neste Oil. The other engine was run on conventional kerosene, so that a direct comparison was possible. The basis for the alternative fuel was formed by the "energy plants" Camelina (80 percent) and Jatropha (15 percent) along with animal fats (5 percent). The aircraft was refueled exclusively in Hamburg, as that location fulfilled the logistical requirements, which included a suitable aboveground tank at the port and two autonomous tanks at the airport. On these 1,187 flights, the A321 consumed a total of 1,557 tonnes of the biokerosene mix and, according to initial calculations, emitted about 1,500 fewer tonnes of CO<sub>2</sub>. The scientific analyses that are to follow up the long-term test will determine the precise savings realized.



The Lufthansa Airbus A321 (registration D-AIDG) being refueled with a biokerosene mix.



Clean Tech Media Award: Sir Bob Geldof presents the special prize to Lufthansa (from left: Joachim Buse, Vice President Aviation Biofuel at Deutsche Lufthansa AG, Dr. Joachim Szodroch, former Chairman of DLR, Sir Bob Geldof, August Wilhelm Henningsen, Chairman of the Executive Board at Lufthansa Technik AG).

The biofuel trial was followed up on 12 January 2012 with the first transatlantic scheduled flight to the United States. A Lufthansa Boeing 747-400 carrying about 40 tonnes of biokerosene mix in its fuel tanks flew from Frankfurt to Washington D.C. This flight alone avoided estimated emissions of about 38 tonnes of CO<sub>2</sub>, equivalent to the CO<sub>2</sub> emissions normally generated by six scheduled flights between Frankfurt and Berlin. In September 2011, Lufthansa received a special award for its burnFAIR project in the context of the Clean Tech Media Awards ceremonies.

The main goals of the long-term trial were to gain experience in the use of biokerosene and to collect long-term measuring data. At the same time, these test flights enable experts to examine the effects of biofuel on the environment and on the maintenance and life span of aircraft engines. "Our burnFAIR project went off smoothly and to our fullest satisfaction. As expected, biofuel proved its worth in daily operations," says Joachim Buse, Vice President Aviation Biofuel at Deutsche Lufthansa AG.

### Positive analysis results

During the entire test phase of the project, both flight crews and Lufthansa Technik carefully observed the performance of engines and aircraft – and detected no abnormalities. In addition, scientists at the German Aerospace Center's Institute for Combustion Technology (DLR) analyzed the emissions in the engines' exhaust. To do so, they positioned a probe behind each engine of the Lufthansa Airbus A321 (registration D-AIDG) and fed the exhaust gases through a pipe to the analysis instruments. The result: The DLR experts measured similar nitrogen oxide and carbon monoxide values in the exhausts of the two engines.

Once the test flights were concluded, an initial analysis of the aircraft components was carried out. Detailed checks of both fuel tanks for deposits and changes in the seals yielded positive results. The experts examined tank structure, fuel lines, connections and other elements of each tank for damage and corrosion, and the seals for wear. In the examined areas, the experts found no deposits. The entire tank was in very good condition, with no negative findings. The same was true for the fuel lines between tank and engine. The equipment demonstrated normal reactions with regard to function and tightness.



"For us pilots, the use of biofuel had no influence on safe flight operations. On the contrary, we conserved fuel during this flight. Participating in this pioneer project has really been a great experience, and I hope that we'll be able to fly regularly with biofuel very soon."

Daniel Riefer  
First Officer Boeing 747 and Project Manager  
Aviation Biofuel, Deutsche Lufthansa AG



"burnFAIR has shown that we can fly as reliably with biokerosene as with conventional kerosene – and significantly reduce our emissions while doing so. Now the remaining challenge is obtaining the necessary biomass in sufficient quantities and in accordance with our strict sustainability criteria, in order to achieve the IATA's ambitious goals for CO<sub>2</sub> reduction."

Jan-Erik Kruse  
First Officer Airbus A320 and Project Manager  
Aviation Biofuel, Deutsche Lufthansa AG





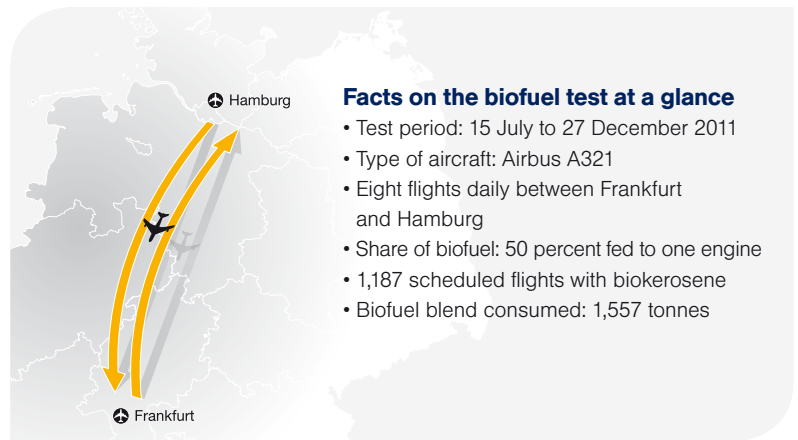
The engine run on the alternative fuel also showed no particularities compared with its conventionally powered counterpart. Its fuel flow rate, however, was about 1 percent below that of the engine fueled by “normal” kerosene. Hence the engine burning biokerosene consumed less fuel overall, which is attributable to the fact that the energy density of the biosynthetic fuel was about 1 percent higher on average than that of the conventional kerosene. On the whole, the energy efficiency of the engines thus remained unchanged.

Another important aspect to be investigated was the fuel quality during storage in the aboveground tank in Hamburg. This analysis confirmed that the fuel's characteristics did not change over this time period. In particular, no separation of the pure biosynthetic kerosene from the conventional kerosene in the blend was observed, nor was there a significant presence of microbes. “The product was ‘storage stable’ and there was no loss of quality,” emphasizes Dr. Alexander Zschocke, Senior Manager Aviation Biofuel at Deutsche Lufthansa AG.

### Comprehensive communications

Lufthansa has informed its stakeholders and the public extensively about the goals and progress of this long-term test, through measures including a flyer for customers, videos, expert presentations to visitor groups, stands at numerous trade fairs, and dialogue events. More detailed information on the topic and the practical trial is provided by the Internet page dedicated to biofuel [www.puresky.de](http://www.puresky.de). The Group has also set up a specific area on its internal eTeaming platform to inform its employees about the project.

In addition, an online survey was carried out among Lufthansa Miles & More customers following the conclusion of the test phase. It focused on questions concerning knowledge of, attitudes toward and evaluation of the topic of biokerosene. While the majority of the 532 interview participants rated Lufthansa's activities in the area of alternative fuels as positive, only every third respondent saw this as a measure with positive effects on climate protection. Individual comments also indicated that participants reject the potential use of food stuffs to produce such fuels. This is precisely one of the basic conditions that Lufthansa too has always placed on biokerosene: no competition with food production. Beyond that, biofuels must be produced and certified according to sustainability criteria, generate a definite environmental utility and be available in sufficient



### Facts on the biofuel test at a glance

- Test period: 15 July to 27 December 2011
- Type of aircraft: Airbus A321
- Eight flights daily between Frankfurt and Hamburg
- Share of biofuel: 50 percent fed to one engine
- 1,187 scheduled flights with biokerosene
- Biofuel blend consumed: 1,557 tonnes

quantities and at acceptable prices. Over the years ahead, therefore, the focus will be on suitability, availability, sustainability and certification of raw materials. However, this market must first be opened up.

### Further commitments of the Lufthansa Group

Lufthansa joined forces with leading German research institutions, other aviation companies and bioenergy producers to found the initiative “Aviation Initiative for Renewable Energy in Germany” (aireg) on 8 June 2011 in Berlin. Its goal is to support the development and introduction of renewable fuels for aviation in Germany and to provide information about the demand, origin, availability and use of these fuels. Through their commitment, the initiative's members aim at creating a sound basis for political decisions related to the introduction of climate-friendly aviation fuels.

Besides aireg, the Lufthansa Group is active in the following initiatives:

- Sustainable Aviation Fuel Users Group (SAFUG)
- Roundtable on Sustainable Biofuels (RSB)
- European Algae Biomass Association (EABA)

In addition, Deutsche Lufthansa AG cooperates with Leuphana University Lüneburg and INOCAS GmbH. These joint efforts aim at using the university's research results to develop practice-oriented concepts for the sustainable and competitive production of raw materials for the production of biokerosene.

For further information visit [www.puresky.de](http://www.puresky.de)



# Fuel efficiency at the Lufthansa Group – Cutting costs and protecting the environment

Using fuel as efficiently as possible in flight operations is one of the central objectives of the Lufthansa Group. The activities in this area interlink ecological and economic necessities: The more the airline reduces its kerosene consumption, the greater the positive environmental effects and the cost savings.

The aviation industry has taken on a big job in terms of climate protection and set itself ambitious goals. It plans to improve average fuel efficiency by 1.5 percent per year up to 2020 and thus to slow down the increase in CO<sub>2</sub> emissions accordingly. From 2020, CO<sub>2</sub>-neutral growth should then be achieved. In the long term, aviation's net CO<sub>2</sub> emissions are to be reduced by half by 2050, compared with 2005. The basis for realizing climate-neutral growth by 2020 is the industry's established four-pillar strategy, which interlinks an array of diverse environmental measures (see illustration on page 71). Its scope comprises technical progress, improved infrastructure, operational measures and economic measures.

## Project “Fuel Efficiency” – Progress and activities 2011

In October 2009, Lufthansa German Airlines launched the project “Fuel Efficiency” in an effort to reduce kerosene consumption in flight operations and thus to lower costs sustainably in times of continuously increasing fuel prices. “Fuel efficiency is a very important part of our strategy,” emphasizes Jürgen Starck, Project Manager Fuel Efficiency at Deutsche Lufthansa AG until the end of March 2012. The ratio “specific fuel consumption” was the first non-monetary variable to be included in the process of operating Group planning, a fact that underlines the importance of fuel efficiency as an issue.

## Lufthansa German Airlines

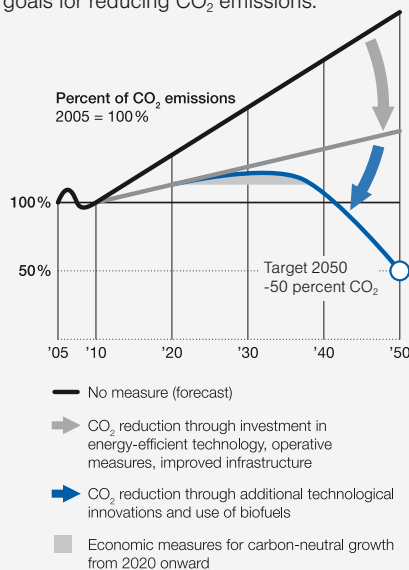
In 2011, Lufthansa German Airlines chiefly concentrated on reducing the weight of its aircraft further, advancing measures related to air traffic control in cooperation with DFS Deutsche Flugsicherung and Eurocontrol, and optimizing procedures in flight operations. In addition, certain technical measures and adaptations in the area network / ground yielded further fuel savings.

### Reducing aircraft weight

For example, following comprehensive test runs, Lufthansa German Airlines in cooperation with Lufthansa Cargo will use a lightweight container that saves 14 kilos per unit when compared with previous models (see sections on Lufthansa Cargo in this article). Another 230 kilos can be saved on Airbus A340-300s by removing extra tanks that are not needed for the route distances flown by Lufthansa. In addition, the removal of an unused towing fitting on the nose gear of the A340-300 reduces the aircraft's weight further. One kilo less on all aircraft of Lufthansa German Airlines saves 30 tonnes of kerosene per year, according to the latest calculations.

### Reducing emissions in sync

The UN aviation organization ICAO and the world airline association IATA are committed to ambitious goals for reducing CO<sub>2</sub> emissions.



## Four pillars for climate protection

### 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

#### Network / Ground

On the ground, Lufthansa always aims at avoiding long taxiing times during phases with high traffic volumes. For example, in coordination with network management, the company brought forward its flight from Philadelphia to Frankfurt by 45 minutes to shorten the taxiing time. The payoff: the engine running time on the ground was shortened by 18 minutes.

#### Flight operations / Air traffic management

In the Gulf region, on the routes Riyadh to Doha and Riyadh to Muscat, Lufthansa pilots can now request new and up to 15 minutes shorter routings and thus save up to 2 tonnes of fuel per flight. Between Hamburg and Munich, the removal of certain altitude restrictions by DFS Deutsche Flugsicherung means that flights can now be operated higher and fuel can thus be conserved. In close cooperation with DFS, Lufthansa CityLine has also optimized its flight routings and now includes “partly restricted areas” in its flight planning.

#### Technical optimizations

At the technical level, for example, small but effective changes on the Boeing 737’s landing flaps lead to improved aerodynamics. As a result, fuel can be conserved during a flight’s climbing and cruising phases. Lufthansa has fully refitted two aircraft as part of a trial to obtain reference data.

#### “Fuel Reporter” provides an overview

Furthermore, Lufthansa has developed “Fuel Reporter,” a software that analyzes the influences of different parameters on fuel consumption and automatically generates relevant ratios and reports. In this way, a long-term standard is applied for data, formulas and reports. The program uses data from flight operations that previously had to be collated manually. It saves time and allows more detailed, more frequent analyses. This application makes it possible to obtain important data at a glance.

Another advantage of Fuel Reporter is that trends in fuel consumption and the parameters that influence it can be detected early on – enabling the experts to react more quickly. In addition, they can track the effects of newly introduced conservation measures more readily. Currently, Lufthansa German Airlines and the regional airlines are already working with Fuel Reporter. Other Group airlines are planning to introduce the software.



The optimization of flight routings is one of many measures in the area of Fuel Efficiency.

## SWISS

SWISS already operates one of the most fuel-efficient fleets in the industry. Independently of that fact, the experts at this Lufthansa Group company continue to identify and realize further kerosene conservation potentials. For example, SWISS pilots are encouraged to exit the runway after landing with only one engine running whenever the situation allows. This “single engine taxiing” helps avoid an estimated 1,500 tonnes of CO<sub>2</sub> per year. Beyond that, all of the airline’s pilots received the brochure “Best Practice in Fuel Management.” In the framework of the Single European Sky ATM Research Program (SESAR), SWISS developed a new approach procedure in cooperation with the air traffic control authority Skyguide and Flughafen Zürich AG at Zurich Airport. Called “Greener Wave,” it helps manage more effectively the first flight bank in the early morning hours. The assigning of defined time slots has replaced the previously used principle of “first to arrive, first to land.” The flights optimized and the holding patterns averted in this manner mean that emissions of up to 1,800 tonnes of CO<sub>2</sub> per year can be avoided. A video about the new approach procedure “Greener Wave” is available at

[www.swiss.com](http://www.swiss.com)

SWISS WorldCargo, the freight division of SWISS, will also replace its aluminum containers with a lighter version by 2015. The weight reduction realized in this manner lowers not only costs but also fuel consumption and emissions.

## Austrian Airlines

In 2011, Austrian Airlines also implemented numerous measures to reduce the weight aboard its aircraft. This included the installation of new, lighter seats on the aircraft of its Airbus A320 and Boeing 737 fleets. As a result, the weight per seat declined by 1.5 to 5 kilos and the annual fuel consumption by 1,650 tonnes of kerosene. The airline has achieved a further weight reduction by reducing the fuel reserves for each flight to an appropriate level. And on long-haul routes, optimum loading of aircraft helps conserve kerosene.

Furthermore, Austrian Airlines had winglets installed at the wingtips of its Boeing 767s. This step alone helps avoid 8,800 tonnes of CO<sub>2</sub> emissions per year.

## Lufthansa Systems

### **More entertainment, less weight**

Lufthansa Systems sets a new standard with its wireless in-flight entertainment solution (IFE) BoardConnect. Designed as intranet aboard the aircraft, the new solution uses a radio network in accordance with the established WiFi standard to replace the costly, weighty wiring of each individual seat. Its key elements are a server and several access points throughout the cabin. Passengers access the server’s contents via their own laptops, smartphones and tablet PCs. Alternatives are WiFi-based fitted screens or mobile devices that the airlines provide for their passengers. Avoiding many kilometers of cabling and other types of equipment implies a significant weight reduction. In the case of an Airbus A340-600 with 380 seats, this amounts to about 900 kilos, which corresponds to a fuel savings of 47 tonnes per aircraft and year. The savings becomes even bigger when no screens are installed in the seat backs of certain subfleets. Airlines also avoid significant installation and maintenance costs, and they benefit from the added revenue potential of electronic sales onboard. This makes BoardConnect a classic example of how ecological and economic interests can be meaningfully interlinked.

### **Electronic Flight Bags ease environmental burdens**

More and more airlines worldwide are introducing Electronic Flight Bags (EFB). These “electronic pilot’s cases” largely replace printed route maps, briefing documents and technical manuals in the cockpit. With “Lido/FlightBag” Lufthansa Systems offers one of the leading EFB solutions in the market. EFBs offer a number of important advantages: By avoiding heavy manuals, they save airlines weight and thus fuel in everyday operations. They are up-to-date at all times because they are always fed with the latest data before take-off. Most importantly, they do away with the need for the regular printing and distributing of paper documents to each aircraft in the fleet. In this way, paper consumption is also significantly reduced.



## Lufthansa Cargo

Lufthansa Cargo has introduced its own internal Fuel Efficiency program, comprising 52 points to reduce the Cargo fleet's kerosene consumption. Even before an aircraft takes off, the most diverse measures take place on the ground to help save fuel. This includes regular engine washes and aircraft loading that takes into account the optimum center of gravity. The latest weather data and maps also facilitate fuel management as well as the planning of optimized flight procedures, variable speeds and altitudes.

In addition, Lufthansa Cargo has tightened the control of aircraft weight in the framework of a "Weight Watchers" program. For example, the air-line operates four MD-11Fs that were converted from passenger to freight aircraft some time ago. The company recently removed the telephone equipment that is no longer needed on these freighters. Merely taking a telephone receiver weighing 350 grams off the aircraft yields a total savings of 3.5 tonnes of kerosene per year. "This example shows how quickly grams can turn into tonnes, given about 15,000 to 16,000 flights per year," says Wolfgang Raebiger, Director of Flight Operations at Lufthansa Cargo AG.

### Water reserves reduced

Furthermore, Lufthansa Cargo reduced the previously ample water reserves of the onboard toilet by 80 percent, which means that the engines of the cargo fleet now burn about 1,300 fewer tonnes of kerosene per year. Similarly, the extra fuel reserves ordered by the pilots were significantly reduced compared with 2005, from previously 2.7 tonnes per flight on average to currently 1.4 tonnes. An analysis of consumption data from 2009 to 2010 showed that 97.2 percent of all cargo flights reached their destinations without using a drop of extra fuel. "In the final analysis, pilots need to use their own judgment concerning the quantities of extra fuel for a specific flight. Safety has the unequivocal priority here," emphasizes Wolfgang Raebiger.

In addition, by 2015 Lufthansa Cargo will replace 5,000 of the currently used standard aluminum containers, weighing 80 kilos a piece, with lighter containers featuring side walls that are partly made of honeycombed polypropylene. The weight savings of these lower-deck containers, which are used to transport passenger baggage and freight shipments, comes to almost



The new lightweight container of Jettainer GmbH, a subsidiary of Lufthansa Cargo

19 percent. Comprehensive tests between 2008 and 2011 also showed that the use of these alternative materials entails fewer repairs. Calculated to the movements of all Lufthansa aircraft, replacing the container fleet will result in a total savings of about 2,180 tonnes of kerosene and thus about 6,800 tonnes of CO<sub>2</sub> per year. Once this switch is accomplished, Lufthansa and the other Group companies will together operate one of the world's largest lightweight container fleets.

### More efficient engines and aerodynamic wings

In the air, developments such as more efficient engines, aerodynamic wings, nanotechnology in aircraft paint and new composite materials help ensure that the aircraft of Lufthansa Cargo consume as little kerosene as possible. At the same time, the pilots of the air freight service provider learn kerosene-conserving flying as early as during their initial training. These techniques include the Continuous Descent Approach (CDA), which means continuously decreasing altitude flown at reduced engine thrust. The pilots can also reduce fuel consumption by the optimized use of flap settings during approach and the intelligent deployment of thrust reversal.

# Environmental measures: Efficient at all levels

The companies of the Lufthansa Group strive continuously to reduce the environmental effects of their business activities. Through the example of Lufthansa Cargo, the following infographic shows the highly complex and diverse activities and the many savings achieved to steadily improve the environmental balance sheet in the air and on the ground.

## On the ground

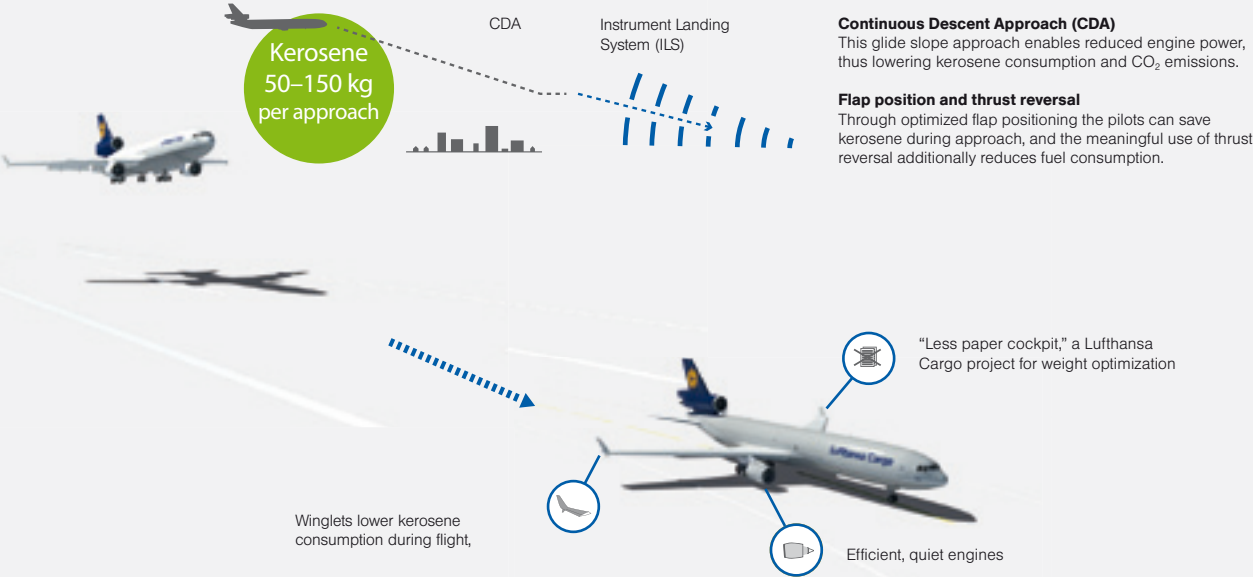
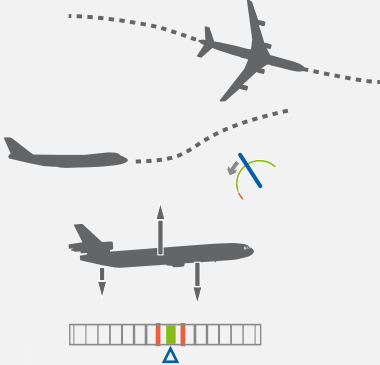


## During the flight

**Fuel management**  
Due to various restrictions it is often impossible to plan the shortest possible paths as flight routes. En route, however, the pilots can negotiate shortcuts with air traffic controllers and thus save kerosene.

**Flight altitude / Aerodynamic drag**  
Lufthansa Cargo pilots constantly optimize the "vertical flight profile" in collaboration with air traffic control in order to utilize favorable winds and reduce aerodynamic drag.

**Weight and balance**  
Lufthansa Cargo experts on the ground ensure that the freighters are loaded in exactly such a way that they have an optimal center of gravity and thus save kerosene in flight.





## Air traffic management – The Single European Sky is taking shape

The largest climate protection project in European civil aviation is the creation of a single airspace above Europe. This initiative makes growing air traffic not only more environmentally friendly, but also safer and more cost effective. To make the Single European Sky (SES) a reality by 2020, the EU Commission and the European air traffic control authority Eurocontrol launched the Single European Sky ATM Research Program (SESAR).

SESAR's framework serves to standardize Europe's air traffic management (ATM) by means of new technologies, procedures and standards (for additional information see *Balance 2011*, "Air traffic management – Towards a unified European airspace," page 74). The most important authority during the development phase is the SESAR Joint Undertaking (SJU).

SESAR is organized into three phases: definition, development and implementation. During the definition phase, which was concluded in 2008, the participants drew up a European ATM master plan. Lufthansa has participated actively in its update, which is to be published in 2012. The second phase, which will continue until 2016 under the SJU's responsibility, includes all research and development activities to prepare the implementation of the introductory package previously defined in the master plan. Altogether, 21 task packages with currently more than 300 individual projects must be completed. In 2012, the project partners also began to pave the way for SESAR's deployment phase. Lufthansa is represented in both the steering and the expert groups, which identify and implement the initial measures. At the same time, the experts are working to develop a long-term deployment management.

### Active contribution by the Lufthansa Group companies

Currently, Lufthansa takes an active part in more than 50 SESAR projects. In coordination with the SJU, the aviation company concentrates primarily on those tasks where its experience and expertise can provide the greatest utility for the SESAR program. The experts of Lufthansa, SWISS, Austrian Airlines, Brussels Airlines, Germanwings, Lufthansa Cargo and Lufthansa Systems apply their know-how from a broad range of specialized areas – such as route planning, operations control centers for air and ground, cockpit crews, training departments, information technology and finances.

In 2011, for example, "controlled times of arrival" (CTA) were tested. For flights to Stockholm, Swedish air traffic controllers gave Lufthansa crews a target time by which a certain point in the approach phase had to be reached. Then the Airbus aircraft automatically calculated the most efficient route and flew accordingly. The insights gained in this project are being fed into further simulations and tests planned for 2012 and 2013.

### SESAR demonstrations and AIRE

Beyond the SESAR research program, the SJU also supports test projects that allow immediate ecological improvements. This includes the program AIRE ("Atlantic Interoperability Initiative to Reduce Emissions") and new demonstrations that incorporate optimization proposals developed in the framework of SESAR into current operations. From 2010 to 2011 the Group concluded four projects ("AIRE 2") successfully. For a detailed project description see *Balance 2011*, "Air traffic management – Towards a unified European airspace," on page 74 as well as the final reports at [www.sesarju.eu/environment/aire](http://www.sesarju.eu/environment/aire)

In 2012, Lufthansa applied with three initiatives for renewed participation in test projects running until 2014 ("AIRE 3" and "SESAR Solution Demonstrations"), two of which were approved on 29 March 2012.

The first initiative is "Free Route," a project of DFS Deutsche Flugsicherung and Eurocontrol in cooperation with Lufthansa. It strives to shorten routings above Germany and the Benelux countries as much as possible – and this right across national boundaries in the spirit of the Single European Sky.

The second initiative concerns the trial use of target times for entering specific airspace or initiating the approach phase to an airport, instead of the exactly defined departure times that are currently standard practice. The advantage: traffic can be planned better and unnecessary holding patterns can be avoided. Joining this project are not only the two Group companies SWISS and



“In the context of the SESAR program, we will be taking over a significant part of the development of an IT solution for the optimization of flight routings. Our goal is to define future systems and technologies and to have a prototype developed and validated by project end.”

Urban Weißhaar  
Team Leader Product Development Lido/Flight  
Lufthansa Systems

Lufthansa German Airlines, but also Air France-KLM, the French air traffic control authority DSNA, DFS and the Swiss air traffic control authority Skyguide. Beyond that, Airbus is planning to give the project its technical support.

#### **Lufthansa Systems supports the SES**

Since June 2011, Lufthansa Systems has collaborated on the necessary route planning for a future Flight and Wing Operations Center in the context of SESAR task package 11 “Flight and Wing Operations Center / Meteorological Services.” In this way, the Lufthansa subsidiary takes a leading role as an innovation driver in the research and development for a unified European airspace. Work for the task pack-

age was awarded to the IT service provider in a consortium with Airbus, Honeywell, Sabre and Cassidian.

Together with Sabre, Lufthansa Systems is developing the system requirements to optimize the four-dimensional flight path that allows the calculation of the optimal position in a unified airspace at any given time. Airbus is responsible for the project’s overall coordination, while Cassidian compiles the requirements concerning the military use of airspace and Honeywell coordinates the issues related to business aviation. “In the context of the SESAR program, we will be taking over a significant part of the development of an IT solution for the optimization of flight routings,” reports Urban Weißhaar, Team Leader Product Development Lido/Flight at Lufthansa Systems. “Our goal is to define future systems and technologies and to have developed and validated a prototype by project end.” Although it will take another five years to get there, this will be a milestone on the path toward a more efficient, punctual and environmentally friendly form of air transport in Europe.

## Emissions trading system – Shared global solution wanted

Air transport has been included in the EU’s emissions trading scheme since 1 January 2012. Since then, more than 4,000 aircraft operators from over 150 countries have been obliged to provide an emissions permit for each tonne of carbon dioxide emitted. There are a few exceptions that dispense some air transport companies from participating in the EU Emissions Trading System (EU ETS).

In principle, all aircraft operators who land or take off in Europe are subject to the emissions trading system. Exempted are certain types of flights – such as customs, military, rescue or training flights – and small airlines with a low number of flights (up to two flights a day on average) or with annual emissions under 10,000 tonnes of CO<sub>2</sub>. Every airline obligated to participate in the emissions trading system has a limited quantity of emissions allowances at its disposal, as was previously defined by the EU. Emissions surpass-

ing this allotment have to be covered by the purchase of additional certificates.

The basis for these allowances is air transport’s average emissions per year for the period from 2004 to 2006. In 2012, airlines receive certificates covering 97 percent of this base value, in the years up to 2020 only 95 percent. Of these allotments, 85 percent of the certificates are free of charge, the remaining 15 percent are auctioned by the EU member states. Each air transport



operator's specific share in the total emissions certificates allotted free of charge is calculated by comparing the respective Europe-wide transport performance of the individual air transport operators in 2010 (the "benchmark" year).

As the Lufthansa Group has expanded significantly in recent years, the company expects that it will have to acquire certificates for about 30 percent of its CO<sub>2</sub> emissions in 2012.

The EU hopes that the emissions trading scheme will give airlines an added incentive to operate fuel-efficient aircraft and technologies in order to keep CO<sub>2</sub> emissions as low as possible. From the perspective of Lufthansa and the airline industry, an incentive to conserve kerosene is already provided by the high fuel prices alone. Fuel consumption constituted more than 20 percent of the Lufthansa Group's operating costs in 2011. Additional effective climate protection that works without distorting competition can only be reached by means of a global agreement that includes all important air transport nations. Lufthansa will continue to cooperate in constructive ways to find a solution that is acceptable worldwide. "Until then, however, the EU Emissions Trading System must be suspended if we are to achieve the goal of the world aviation organization ICAO in the near future," explains Thomas Kropp, Senior Vice President, Head of Corporate International Relations and Government Affairs at Deutsche Lufthansa AG.

### **Vehement international resistance**

The European Court of Justice (ECJ) ruled on 21 December 2011 that the EU Emissions Trading System is lawful and thus dismissed a lawsuit brought by U.S. airlines and the American airline association A4A (formerly ATA). Despite this, vehement resistance against the European solo effort has developed in the meantime. At the end of 2011, the council of the International Civil Aviation Organization (ICAO) demanded with 26 of 36 votes that the EU respect the principles applied in civil aviation and refrain from applying EU law outside of its territory and to non-European airlines respectively. This demand was supported by all important trading partners of the EU, including Russia, India, China and the United States.

At a conference in Moscow, the representatives of 23 non-EU nations adopted a declaration on 22 February 2012 to protest against the EU emissions trading scheme. At the same time, they threatened severe retaliatory measures. European airlines would have to expect restrictions

in overflight rights, additional charges or even the withdrawal of landing rights. Shortly after the signing of this declaration, China suspended an order of Airbus aircraft for the time being. Furthermore, non-European airlines are to be forbidden from participating in the emissions trading system through legal regulations. In the United States, a bill to this end passed the House of Representatives in October 2011. The Chinese and Indian aviation authorities have already prohibited their countries' airlines from participating.

In a letter sent in March 2012 to the heads of government of Germany, France, Spain and Great Britain, aircraft manufacturer Airbus, Lufthansa and other large European airlines again urgently pointed out that European aviation companies have been threatened with possible retaliatory measures as a result of the EU ETS, that the announced threats are now being carried out and that they are already manifesting themselves in concrete punitive measures. To avoid a major trade conflict at the expense of the European economy in general and the European air transport industry in particular, the heads of European governments were urgently requested to work for a swift and balanced solution of this conflict.

The ICAO might be able to open a way out of this conflict. This United Nations special organization is working on developing an appropriate proposal by the end of 2012. "The ICAO, in cooperation with the EU, must find a global solution that is in the interest of both the environment and fair competition. However, the EU has indicated no willingness thus far to tackle the looming competitive distortions. Therefore, we fear massive disadvantages for the European airlines," says Thomas Kropp.



"The ICAO, in cooperation with the EU, must find a global solution that is in the interest of both the environment and fair competition. However, the EU has indicated no willingness thus far to tackle the looming competitive distortions. Therefore, we fear massive disadvantages for the European airlines."

Thomas Kropp  
Senior Vice President, Head of Corporate International Relations and Government Affairs, Deutsche Lufthansa AG

### **The Lufthansa Group is prepared for emissions trading**

Independently of the dispute at the political level, the Lufthansa Group fulfills the obligations arising from the emissions trading system and acquires the required certificates. At the same time, the company draws attention to the problems and points out the effects on the company and the entire European airline industry. To meet the official requirements, the Group set up a dedicated project team and spent months preparing for emissions trading.

Ten companies with flight operations in the Lufthansa Group participate in the EU ETS. They have to report to five different national authorities (Germany, Great Britain, Italy, Austria and Spain). The related company-internal processes are integrated into the central fuel purchasing or kerosene hedging function. In addition, each company has a department or person in charge of the associated reporting and monitoring. In 2012 alone, the Group expects additional costs from the emissions trading scheme of about 100 million euros. At the moment, this expenditure is not yet very high as certificate prices are still low. But it is foreseeable that costs will increase in the future, as traffic growth and thus certificate prices are set to rise. When buying tickets, Lufthansa customers already pay related charges, aimed at compensating for the additional costs caused by the EU ETS. Other airlines have not yet included these costs, which further distorts competition.

### **The demand: An effective, competition-neutral global system**

At the moment, the European airlines are doubly disadvantaged: They have to bear the costs from the emissions trading system and fear sanctions from third countries. In Germany and other EU countries such as Great Britain and France, there are further significant costs from national ticket taxes. The airlines are increasingly becoming the plaything of politics as retaliatory measures by third countries are aimed at the European airlines and not against the EU countries themselves.

In the opinion of the Lufthansa Group, a solution can only be found by means of negotiations, an area where the ICAO is very active already. With a global problem such as climate change, regional solo efforts are not helpful; a sensibly designed system for the reduction of emissions applies economic measures worldwide. By including all countries and airlines, it ensures neutral and fair competition. The aviation company also hopes

that the German government will fulfill the pledge expressed in its coalition contract. There, the government states: "In the context of introducing the emissions trading system for aviation, we want to ensure competitive neutrality."

Lufthansa is already working to concretize a generally acceptable solution in a number of European and international working groups, such as those of the industry associations IATA (International Air Transport Association) and AEA (Association of European Airlines). Such a solution must fulfill five core principles in the view of the aviation group: A global system must be cost-effective. And it must guarantee a reduction of CO<sub>2</sub> emissions – without discriminating. Furthermore, the organizers must ensure the system's integrity by means of continuous monitoring and reliable reporting. In addition, emissions must not be counted more than once. Finally, the obligations of each air transport operator must be determined on the basis of its current emissions.

If integrated into the aviation industry's established four-pillar strategy for climate protection (see graph on page 71), a sensibly designed, market-based system for emissions reduction can do its part in realizing two of the industry's key goals: a climate-neutral growth from 2020 and a 50-percent reduction of air transport's net CO<sub>2</sub> emissions by 2050 compared with 2005.



# Environmental management

## Concepts and strategies for environmental care

With the strategic environmental program introduced in 2008, Lufthansa defined its Group-wide goals and perspectives for environmental and climate protection until 2020. One of these goals is to further expand and strengthen environmental management at the Group level and at the Group companies. This is the responsibility of the department Group Environmental Issues, which coordinates the framework, strategy and activities related to the environment for the entire Lufthansa Group.

The concept of environmental care has been firmly established at the company for many years. At the aviation group, all companies with environmental relevance have their own environmental department, an environmental commissioner or at least a contact partner for these issues. All environmental experts meet twice a year at the Environmental Forum to exchange experiences and to coordinate new strategies, measures and processes. The participants discuss in detail planned legal regulations, such as the planned expansion of the EU chemicals regulations REACH or the challenges of implementing the directive on the EU Emissions Trading System. "The Environmental Forum is the ideal platform for dealing with all environment-related questions at the content level while simultaneously involving all companies and corporate areas in the discussion. This expert round established itself long since as an important coordination and steering instrument," says Jan-Ole Jacobs, Manager Group Environmental Issues at Deutsche Lufthansa AG and organizer of the Environmental Forum.

In the framework of this expert round, two working groups have been discussing subjects that are highly relevant for the entire company since 2010. One team, for example, has been developing standardized ratios that make the environmental activities across the Group measurable and comparable. In 2011, the focus was primarily on defining and differentiating these important ratios and clearing up organizational questions in the run-up to the system's introduction. At the same time, the experts developed clear guidelines and responsibilities for the generation, validation and storage of these data.

The second group has been working on the necessary conditions for the implementation of a Group-wide environmental management system. In 2011, the team compiled further experiences made by the individual Lufthansa companies while establishing their own environmental management systems. As a next step, the experts

are to develop guidelines that will give all business segments and company areas a means of orientation.



"The Environmental Forum is the ideal platform for dealing with all environment-related questions of all companies and corporate areas. This expert round established itself long since as an important coordination and steering instrument for environment-related questions."

Jan-Ole Jacobs  
Manager Group Environmental Issues  
Deutsche Lufthansa AG

The following examples provide representative information about activities at selected Group companies in the area of environmental management.

## Lufthansa German Airlines

- During the reporting year, Lufthansa German Airlines chiefly concentrated on developing further measures in the context of its "Fuel Efficiency" project (see "Fuel efficiency at the Lufthansa Group – Cutting costs and protecting the environment" on page 70).
- At the same time, this Group company successfully concluded a long-term trial of biofuel in scheduled flight operations (see "Long-term trial of biofuel – On track for the air transport of the future" on page 67).
- The airline continues to work actively on the introduction of the Single European Sky (see "Air traffic management – The Single European Sky is taking shape" on page 75).



## Lufthansa CityLine

- In 2012, the environmental management system of Lufthansa CityLine was again recertified according to the internationally accepted environmental standard ISO 14001 and the European eco-audit regulation EMAS.
- This Lufthansa subsidiary is currently preparing the latest issue of its Environmental Report, which will be published in 2012.
- One of the main activities in 2011 was the reduction of energy consumption at the aircraft hangar. Among other measures, the company installed a photovoltaic system on the building's roof (see "Photovoltaic system on CityLine hangar" on page 83).

## SWISS and Austrian Airlines

- In 2011, both SWISS and Austrian Airlines took an active part in the project "Fuel Efficiency at the Lufthansa Group" and implemented numerous measures to improve fuel efficiency in their flight operations further (see "Fuel efficiency at the Lufthansa Group – Cutting costs and protecting the environment" on page 70).

## Lufthansa Cargo

- In December 2011, Lufthansa Cargo passed the recertification of its environmental management system in accordance with ISO 14001 at all German stations. In particular, the external experts noted positively the many "Fuel Efficiency" measures aimed at reducing kerosene consumption (see "Fuel efficiency at the Lufthansa Group – Cutting costs and protecting the environment" on page 70). The same applied to the

new lighting systems and forklifts, which ensure resource efficiency on the ground. The experts did not record any deviations from the standards. "We're pleased that the certification of our environmental management system was confirmed for all German stations. This was only possible with the support and the enormous commitment of all employees and managers. This gives us a top position in the air freight industry," says Bettina Jansen, Head of Security and Environmental Management at Lufthansa Cargo AG. The company plans to expand its environmental management system to international stations in 2012.

- "Green Solutions" was one category in the first international innovation competition organized by Lufthansa Cargo, the "Open Innovation Challenge." Investments in innovation are decisive for the air freight service provider in the environmental area as well. At the end of 2011, customers, employees and other interested persons were able to submit their ideas via an Internet platform. Many of these are now being pursued internally at Lufthansa Cargo.

- Since 2010, Lufthansa Cargo has actively participated – together with the Fraunhofer Institute and other logistics companies – in the research project "Green Logistics," which is supported by the German federal government. The project's goal is to identify the environmental effects of logistical processes and systems on a "user pays" basis, as well as to develop methods and instruments for a comprehensive ecological assessment. The Lufthansa subsidiary provides its know-how in the area of air freight logistics and has also assumed the lead in the design of a resource-efficient air freight center. The results of the case study "ecoHub" will be taken into account in planning the infrastructure of the Cargo hub at the Frankfurt location. More information is available at

[www.green-logistics-network.info](http://www.green-logistics-network.info)

- An environmental cockpit chart helps ensure that management is informed regularly about goals, activities and environmentally relevant performance ratios.
- Lufthansa Cargo published its first sustainability report in 2012.

## Lufthansa Technik

- Lufthansa Technik has set itself the goal of having all its subsidiary companies certified by 2013 according to the environmental management standard ISO 14001 and job safety specification OHSAS 18001.



"We're pleased that the certification of our environmental management system was confirmed for all German stations. This gives us a top position in the air freight industry."

Bettina Jansen  
Head of Security and Environmental Management  
Lufthansa Cargo AG



- In the reporting year, the companies Lufthansa Technik Turbine Shannon and Lufthansa Technik Airmotive Ireland successfully concluded their certification projects in accordance with OHSAS 18001. Both companies have been certified according to ISO 14001 for many years. Certification projects are planned or have been started at seven further companies in 2012.
- Furthermore, the company aims at reducing CO<sub>2</sub> emissions at its Hamburg location by 30 percent by the end of 2012 compared with 2006. By the end of 2011, the company had achieved about 23 percent of this target value. By putting into service its own cogeneration plant in April 2012, the company reduces its CO<sub>2</sub> emissions by a further 7,200 tonnes a year and will significantly surpass its goal.

## LSG Sky Chefs

- LSG Sky Chefs introduced a global environmental management system that is modeled on ISO 14001 and monitored by internal audits. In addition, the company has switched its system over to SAP and is recording the relevant environmental data with this software in 2012 for the first time.
- In 2011, LSG Sky Chefs carried out a review in each of its six regions to identify the environmental aspects that are significant for its business. The process of these controls forms the basis for future environmental audits to be applied worldwide. Through these audits, the company plans to monitor new environmental aspects, program implementations and risks.
- An environmental calendar informs all levels and regions within the company about all important dates in this area.

## LZ Catering

- In 2011, this wholly-owned Lufthansa subsidiary successfully participated with two staff restaurants and its headquarters in the eco-profit project in Hamburg – a support program for environmental protection in companies – and received the corresponding certificate at the end of the year. LZ Catering is continuing the eco-profit project in 2012 with four staff restaurants and its headquarters.
- Sustainable purchasing: The goal is to increase the share of organically grown and regionally produced ingredients continuously. This way, UTZ certified coffee has been used at the com-

pany's "Bartesse Coffeeshops" since April 2012. For the purchase of fish, the company applies the criteria of the World Wide Fund for Nature (WWF) and favors fish certified by the Marine Stewardship Council (MSC). The MSC quota has been increased from 6 to more than 43 percent of the total value of fish purchased by the company.

- The staff restaurant at the Lufthansa Aviation Center in Frankfurt received organic certification in November 2011. Twice a week, dishes prepared entirely with organic ingredients are offered to diners.
- In 2011, the employees also received trainings concerning environmentally compatible practices. Furthermore, the company formulated environmental guidelines and joined the initiative "Umweltpartnerschaft Hamburg" ("Environmental Partnership Hamburg").
- JOB&FIT certification: The company plans to have its health-promoting concept "Food Balance" certified in 2012 at all company restaurants in accordance with the JOB&FIT criteria of the German Nutrition Society (DGE). Furthermore, the company restaurants in Cologne and Norderstedt are to have their certification renewed.

## Lufthansa Global Tele Sales

- Lufthansa Global Tele Sales (GTS) concluded its internal environmental audits in 2011.
- The wholly-owned Lufthansa subsidiary has been supplied with 100 percent eco-electricity since 1 January 2012.

## AirPlus

- Lufthansa AirPlus Servicekarten GmbH, an international provider of solutions for business travel management, has developed products that allow companies to organize their business trips in sustainable ways. With the AirPlus Green Reports, the company provides its customers with transparent, detailed analyses of the CO<sub>2</sub> emissions caused by business travel, so that they can integrate this data into their own emissions balance sheets. Additionally, the solution AirPlus Carbon Offset gives companies the option to compensate the emissions caused by business flights automatically and to have them billed to their AirPlus customer account.

# Energy and resource management

## Towards sustainable practices on the ground

Lufthansa applies sustainable practices not only in the air but also on the ground. For quite some time, the Group has been involved in projects that specifically focus on the advancement of alternative propulsion techniques for use during the taxiing phase of aircraft and for ground vehicles.

In addition, the aviation company's energy experts continuously search for ways to conserve even more electricity in existing buildings by means of ecological construction principles and intelligent energy management. Successfully so, as the following examples from 2011 demonstrate.

### **eTaxi: Test of electric-powered taxiing for aircraft on the apron**

Identifying potential to conserve kerosene is one of the Lufthansa Group's most important tasks in the area of climate protection and environmental responsibility. In December 2011, Lufthansa German Airlines and Lufthansa Technik therefore ran initial tests, under the banner of "eTaxi," of an electric drive mounted on a main landing gear to be used by aircraft in the continental fleet for all taxiing on the apron. The tests were jointly carried out with Fraport and New York-based technology company L-3 Communications, with support from Airbus. The goal of the comprehensive feasibility study is to determine whether electric motors fitted to the main landing gear of an Airbus A320 are suitable for environmentally friendly ground operations. With good reason, because studies show that short- and medium-haul aircraft consume more than 3 percent of their overall fuel burn during taxiing. In the framework of a five-day practical trial under the real conditions of daily

flight operations, the expert team tested in particular pushing the aircraft back at the gate as well as taxiing to and from the runway. The data thus generated are being analyzed in a next step. The results will determine if the development of a prototype is useful.

### **Fuel cell-powered electric nose wheel for the Airbus A320**

Environmental thinking also inspired the development of a fuel cell-powered electric wheel on the nose gear of an Airbus A320. Lufthansa Technik developed the system in the context of the aviation research program LuFo IV, together with the German Aerospace Center (DLR) and Airbus, and tested it for the first time on 1 July 2011 at Hamburg Finkenwerder. The innovative nose wheel allows aircraft to taxi to the runway without using the engines and thus almost emissions-free. At Frankfurt Airport alone, according to the experts, this system would save 17 to 19 percent of exhaust emissions and eliminate almost 100 percent of noise during taxiing. An added advantage is that the fuel cell-powered nose wheel would lessen the workload on the engines and in turn extend the maintenance intervals.

### **First electric car with inductive charging technology**

On 29 August 2011, Germany's first electric car with inductive charging technology was put into service at Frankfurt Airport by Frankfurt Mayor Petra Roth, the Chairman of the Board of energy provider Mainova, Dr. Constantin H. Alsheimer, and the CEO of Deutsche Lufthansa AG, Christoph Franz. The innovative vehicle not only helps make aircraft handling and maintenance as resource-efficient as possible but also delivers insights in the context of a pilot project on how e-vehicles can be recharged conveniently. In addition, the future-oriented car helps to generate and analyze detailed measuring data.

Lufthansa Technik in Frankfurt currently operates 275 passenger vehicles in aircraft maintenance. "Apart from its range, the battery-powered vehicle is superior in every respect to vehicles with inter-



eTaxi – the pioneering idea for more environmentally friendly ground operations.



nal combustion engines. And in combination with electricity from renewable sources, it is also CO<sub>2</sub>-neutral,” adds Harald Weinand, who is responsible for environmental protection at Lufthansa Technik’s aircraft maintenance wing. Specifically refitted for the use of inductive technology, the e-car has also been licensed for road traffic. Its battery is recharged cable-free at Frankfurt Airport’s first induction charging station, also recently recently inaugurated.

### Photovoltaic system on CityLine hangar

As an expression of the responsible use of finite resources, Lufthansa continuously endeavors to reduce the energy consumption of its buildings further. Guided by this principle, a photovoltaic system with a surface of 5,400 square meters was installed in 2011 on the flat roof of Lufthansa CityLine’s Hangar 2. The system makes a significant contribution to lowering the CO<sub>2</sub> emissions at Cologne/Bonn Airport. The airport operator installed the solar modules with support from the Lufthansa subsidiary. “Environmental principles are firmly anchored in our company. That’s why we were immediately in favor of this project,” says Klaus Krichbaum, Head of Facility Management at Lufthansa CityLine. Thanks to the new solar system, 48,000 tonnes of CO<sub>2</sub> can be avoided, and more than 133,000 kilowatt hours of electricity can be produced and fed into the airport’s supply network. This quantity of electricity is enough to supply 33 three-person households with energy for a whole year in a climate-neutral way. A further positive effect: As the white, highly-reflective foil of the photovoltaic modules reduces the solar radiation on the building’s roof, the temperatures inside the hangar are always pleasant.

### Lufthansa Technik builds maintenance hangar at the new capital city airport in Berlin

On 21 June 2011, ground was broken for the future maintenance hangar of Lufthansa Technik at the new capital city airport in Berlin. The hangar is being built on a lot of 18,200 square meters and will offer a hall surface of 6,700 square meters. Another 1,700 square meters will provide space for offices, a mechanical workshop and logistics areas. About 110 highly-qualified mechanics and engineers will simultaneously carry out maintenance – ranging in scope up to an A-check – on up to five short- and medium-haul aircraft or on one long-haul aircraft up to the size of an Airbus A340. Energy efficiency and ecology played a key role in planning the hangar. Among other things, the company was intent on limiting the building’s volume, and thus its energy



Official inauguration of the inductive recharging station on 29 August 2011 at the maintenance base of Lufthansa Technik AG in Frankfurt.

needs, by using a special support structure. The 16 million euro project expands the Lufthansa subsidiary’s location Berlin Schönefeld and is part of the preparations for the inauguration of the new international airport “BER.”

### Lufthansa supported Rhine-Main region as a “Showcase for Electromobility”

In early 2012, the Lufthansa Group was one of the consortium partners supporting the bid of the mobility region Frankfurt Rhine-Main, which includes the Mainz and Aschaffenburg areas, to become a “Showcase for Electromobility” under the German federal government’s National Development Plan for Electromobility. This federal program aims to help develop Germany into both a leading market for and a leading provider of electromobility. It also promotes the registration of at least one million electric vehicles in Germany by 2020 – of which 75,000 should be on roads in Hessen. This move is closely linked to the efforts to lower emissions to fulfill national climate protection goals. Had the model region Frankfurt Rhine-Main been awarded the project, Lufthansa planned to invest over the next three years in 11 projects promoting electromobility. Besides Lufthansa, more than 100 partners from business, research and public administration supported the bid. While the Rhine-Main region unfortunately was not awarded the contract, the Lufthansa Group will keep a close eye on the subject of e-mobility and in particular on the developments in the area of aviation, even without the Federal Government’s project.





The new cogeneration plant of Lufthansa Technik AG in Hamburg.

**Lufthansa Systems:  
Cooling mainframes without a lot of hot air**

By operating latest-technology mainframe computers, cooling units and other equipment, Lufthansa Systems has significantly reduced the energy consumption at its data centers in the recent past. In this manner, the company was able to lower its important Power Usage Effectiveness (PUE) value from over 2 to a very favorable 1.6. The PUE indicates the ratio of the total energy used by a data center's facility to the energy used purely by its computers. The IT specialists take matters one step further by using both the data center's cooling system and its waste heat to cool and heat the offices.

**Lufthansa Technik counts on cogeneration plant in Hamburg**

Economic and ecological criteria provided in equal measure the reasons for the construction of the new combined heat and power plant at Lufthansa's Hamburg base, which was put into service by Lufthansa Technik in March 2012. The 3.4 million euro power station, which significantly supports Hamburg's climate protection concept, has a capacity of 2 megawatts of electrical or thermal output respectively. It supplies a quarter of Lufthansa Technik's total thermal needs and a third of its electricity requirements in Hamburg. The company buys the remaining energy from regional utility companies. "The advantage of a combined heat and power plant lies in its particularly efficient mode of operation, especially when there is a concurrent need for electricity and heat, as is the case with us," explains Jörg Wettlin, responsible project manager at Lufthansa Technik. He considers the new cogeneration plant as a future-oriented decision. "Thanks to this plant, we cut CO<sub>2</sub> emissions by 7,200 tonnes a year. This corresponds to a CO<sub>2</sub> avoidance of 10 percent," according to Wettlin. To ensure that the investment pays off not only ecologically but also economically, an economic efficiency analysis preceded the plant's construction.



Lufthansa Systems: The latest technology helps reduce the energy consumption of data centers.





# Noise emissions

## Great commitment to less noise

The Lufthansa Group always advocates clear reductions of the noise emissions associated with flying – a complex task that demands the cooperation of many different players. Therefore, the Group works permanently with partners in industry, public administration, academia and research on developing perceptible noise reduction measures.

The related activities comprise the following areas: continuous fleet modernization, ongoing optimization of the existing fleet, noise-reducing procedures in flight operations, commitment to noise research and participation in expert committees.

### Continuous fleet modernization

Today, all but three aircraft types operated by the Lufthansa Group already fall below the important “minus 10 EPNdB” criteria (Effective Perceived Noise dB) of the strict Chapter 4 noise standard of the International Civil Aviation Organization (ICAO), which has been applied to new aircraft since 2006. Even so, Lufthansa is not resting on this success, but will acquire 168 new aircraft in the framework of its current fleet modernization program, which runs until 2018 (see “Planning for sustainability: 168 new aircraft by 2018” on page 26). These comprehensive investments in aircraft with efficient and low-noise engines are the basis for quieter air transport, as the following examples demonstrate:

In this way, the noise footprint of Lufthansa’s Airbus A380 is about 30 percent smaller than that of comparable predecessor models. The same applies to the Boeing 747-8, of which the aviation company has 20 aircraft on firm order for delivery starting in May 2012.

Furthermore, SWISS will replace its Avro RJ100s with Bombardier CSeries aircraft from 2014. Thanks to the most advanced engines and high-tech materials, the CSeries aircraft reach new dimensions of economic efficiency and environmental compatibility. The cumulative certification margin of the CSeries is 10 to 15 dB below that of the Avro RJ100, because the PW1000 engines of these Bombardier aircraft feature for the first time geared turbofans as standard equipment. This innovative technology establishes new benchmarks not only in noise reduction but also in fuel conservation.

Starting in 2015, the Lufthansa continental fleet will be integrating Airbus A320neo and A321neo aircraft, which are also equipped with the new PW1000 engines manufactured by Pratt & Whitney. Therefore, the noise measurements in the context of the certification of these aircraft are expected to show significantly lower values than for predecessor models. This again represents important progress with regard to noise reduction efforts.

### Ongoing optimization of the existing fleet

Independently of its investments in new aircraft, the Lufthansa Group works intensively on reducing the noise emissions of the existing fleet. Together with the German Aerospace Center (DLR), the aviation company has been working for many years to identify noise sources on aircraft fuselages in a systematic manner. The insights generated in this area form the basis for numerous noise-reducing activities, such as the latest investments in further perceptible noise protection measures at the Frankfurt hub (see “New package of measures: Alliance for noise protection 2012” on page 87).



The newly developed GEnx-2B67 engines of the Boeing 747-8 are exceedingly fuel efficient and quiet.

In this context, the engines of the entire Lufthansa Boeing 737 fleet stationed in Frankfurt were fitted with new acoustic panels by the end of 2011. In this way, noise during departure and approach is reduced by up to 2.4 decibels at the certification measuring points, according to the manufacturer's data. This voluntary effort is part of the "First Package of Measures for Active Noise Protection" at Frankfurt Airport presented in June 2010 by Forum Airport and Region (FFR).

### Noise-reducing procedures in flight operations

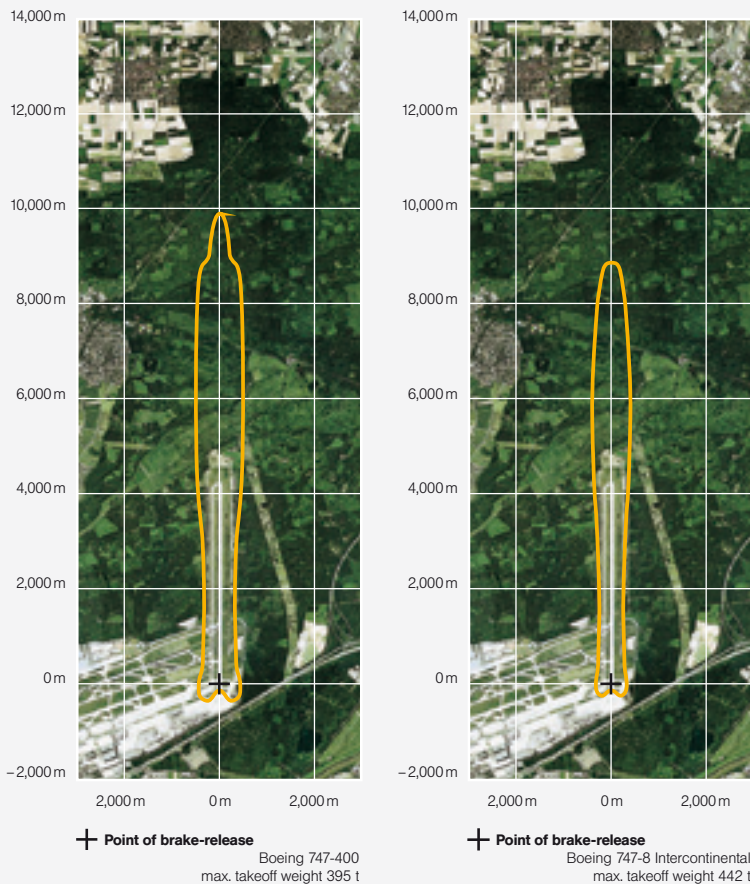
In addition to progress from technical improvements, the noise emissions from air traffic can be reduced by certain flight procedures. For exam-

ple, Lufthansa Cargo started in early 2011 using the "segmented approach" procedure during the night hours in the Rhine-Main region. The segmented approach allows pilots to fly around densely populated areas. Likewise part of the "First Package of Measures for Active Noise Protection," this important building block for noise reduction at Lufthansa Cargo and Lufthansa German Airlines is being tested in Germany for the first time. The goals of this trial run, organized in cooperation with the German Aerospace Center, are to gain operational experience with the procedure and to determine its potential for lessening the noise burden across the region.

Furthermore, Lufthansa uses the quieter Continuous Descent Approach (CDA) at Frankfurt Airport whenever possible. Under the CDA procedure, pilots can reduce an aircraft's noise emissions by reducing engine thrust. The "First Package of Measures for Active Noise Protection" calls for an increase of CDAs by means of a modified flight guidance by the German Aerospace Center.

### Fleet modernization results in audible achievements

The noise footprint of a Boeing 747-8 Intercontinental taking off will be about 30 percent smaller than that of a Boeing 747-400, despite a maximum takeoff weight that is about 10 percent higher. Shown below are the 85-dB maximum level contours for a departure following Lufthansa's standard departure procedure (modATA) and with the indicated takeoff weight.



Source: Boeing

### Commitment to noise research and participation in expert committees

Fact-based solutions for noise reduction can only be developed when the mechanisms of noise development and the characteristics of individual sources of noise are known exactly. To gain new knowledge and develop solutions, Lufthansa has therefore worked continuously for over ten years in the research network "Quiet Traffic" with numerous partners, such as the German Aerospace Center.

### New research project MODAL

At many airports, operators, airlines, residents, municipalities and ministries are discussing ever more intensely further options for active noise protection. Against this background, there is an increasing need to calculate and assess potential measures more precisely – and thus be able to plan them more exactly. For example, Lufthansa endeavors to identify additional noise reducing steps, analogous to the new acoustic panels installed in the engines of the Boeing 737 fleet stationed in Frankfurt. To be sure, the "Directive for the calculation of noise protection areas" ("AzB"), which has been in effect since 2007, is not designed to calculate the effects of such measures. Given the lack of alternatives, however, it has served well in the past to help determine such effects approximately.



By contrast, the planned DIN 45689 (“Determination of aircraft noise exposure at airports”) is to enable more exact noise calculations, as it also takes into account individual types of aircraft and flight performance calculations. The new research project MODAL (“Models and data for the development of active noise protection measures in air transport”) contributes decisively to the standardization process by helping set up the standardized aircraft noise database urgently needed for the new DIN norm. Led by Lufthansa, the project group, which also includes the DLR, airport operators and noise monitoring specialists, has successfully applied for research funds at Germany’s Federal Ministry for Economics and Technology for MODAL. The total budget of the project is 1.6 million euros, of which 1.1 million euros are covered by public funds.

The aviation company coordinates MODAL, which started in January 2012 and is set to end in March 2015. Work will focus on analyzing data generated in previous years on measuring flights with a Boeing 747 and on identifying noise sources. Should the need arise, the project will also concentrate on developing further noise-reducing measures. A parallel task is to add data for the Boeing 747-400 to the database for the DLR’s computer-based aircraft noise simulation program SIMUL. Beyond that, the new standardized aircraft noise database will be linked to an initial version of a DLR simulation program in accordance with DIN 45689. This move will allow the experts to analyze and assess selected noise-reduction measures at different locations by means of the new DIN calculation method for the first time. “MODAL will take us a giant step forward in noise research. In earlier projects, such as FREQUENZ, we worked together with our partners to collect important measuring data, the effect of which we can now analyze in greater detail. Thanks to the work in the context of MODAL, the new DIN standard will be applied for the first time. As a result, we will be able to analyze and assess noise sources and active noise protection measures with much greater accuracy,” explains Dr. Gerd Saueressig, Manager Group Environmental Issues at Deutsche Lufthansa AG.



#### **New package of measures: Alliance for noise protection 2012**

On 29 February 2012, representatives of Lufthansa, Fraport, the airline association BARIG, DFS Deutsche Flugsicherung and Forum Airport and Region signed the agreement “Together for the region – Alliance for more noise protection 2012” together with Hessen prime minister Volker Bouffier. Its goal is to reduce perceptibly the burdens produced by aircraft noise in the area surrounding Frankfurt Airport. Its measures were developed by various working groups from the aviation industry, the state government and Forum Airport and Region, a platform set up by the state of Hessen to facilitate the dialogue between the aviation industry and people living around the airport.

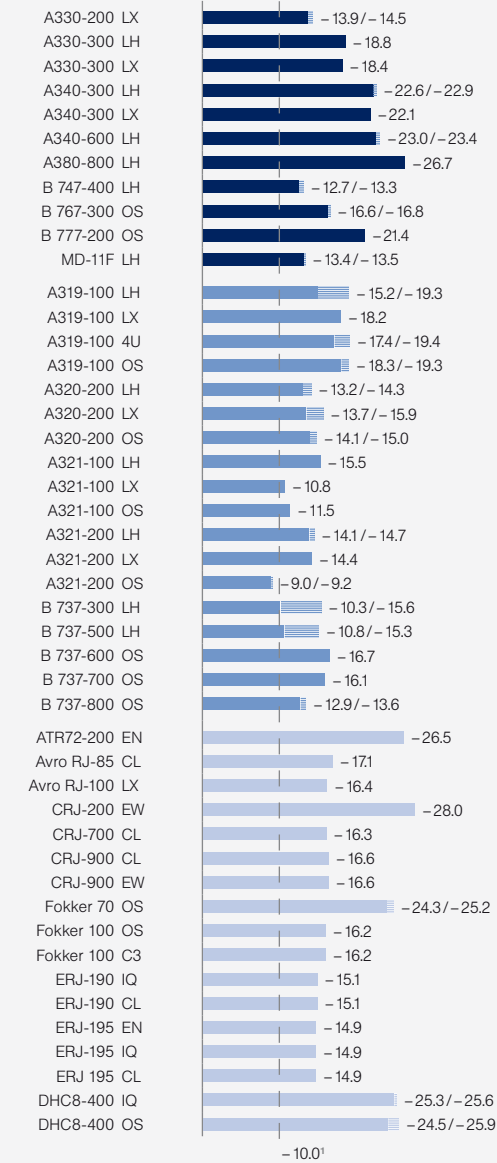
One measure decided by Lufthansa is a modification on its entire fleet of A320s stationed in Frankfurt. By making modifications to the wing’s underside in an area in front of the fuel tank cap, the company aims not only at realizing a noise reduction of 1 to 2 decibels during the approach phase, but also at completely eliminating two unpleasant sounds. This measure is linked to previous joint research with the German Aerospace Center. In 2011, Lufthansa concluded its refit of all Boeing 737s stationed in Frankfurt, as part of the “First Package of Measures for Active Noise Protection” agreed in 2010. The new acoustic panels installed in the aircraft engines lead to noise reductions during the departure and approach phases.

Alongside aircraft modifications, improved departure and approach procedures form another area of emphasis in the active noise protection at Frankfurt Airport. Lufthansa has contributed its aeronautical know-how and participated intensively in developing these improvements. Beyond the noise-reducing flight procedures already implemented, further measures are planned for step-by-step introduction over the medium and long term.

At the same time, it is crucial that municipal administrations consistently introduce construction restrictions in the vicinity of airports to prevent residential areas from encroaching on airports – as has happened frequently in the past. In the interest of a comprehensive course of action, the “balanced approach” of the UN’s International Civil Aviation Organization (ICAO) demands regulations on new construction to complement the measures on aircraft and in flight procedures. This is the only way toward comprehensive action packages that can develop into optimal and sustainable effects.

### Lufthansa Group fleet (active fleet on 31.12.2011)

in EPNdB



Grouping of aircraft types according to MTOW:  
■ under 50 t   ■ 50 to 150 t   ■ above 150 t

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

- 4U = Germanwings
- C3 = Contact Air
- CL = Lufthansa CityLine
- EN = Air Dolomiti
- EW = Eurowings
- IQ = Augsburg Airways
- LH = Lufthansa German Airlines, Lufthansa Cargo
- LX = SWISS
- OS = Austrian Airlines

<sup>1</sup> New ICAO Chapter 4 limit, which has been effective for new aircraft since 2006: -10.0 EPNdB when compared to Chapter 3.

### Margins below the noise limit of ICAO Chapter 3

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 take-off weight prevailing in flight operations are indicated. To allow a more transparent depiction, an improved method of analysis was developed for the previous issue of *Balance*, which includes the individual noise certificate data of all Group aircraft for the first time. Different versions of an aircraft model 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. In addition, many aircraft were recertified in reporting year 2010 according to the new, more stringent ICAO Chapter 4 standard. 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.





# Research projects

## Under development: Worldwide measuring infrastructure for climate research

No research, no progress. To minimize the effects of air transport on the environment, targeted research is needed in many cases. Therefore, the Lufthansa Group is active in numerous scientific projects, whose spectrum reaches far beyond climate research.

This includes initiatives to limit aircraft noise (see “Great commitment to less noise” on page 85), to promote the use of biofuels (see “Long-term trial of biofuel – On track for the air transport of the future” on page 67) and to test alternative propulsion technologies such as eTaxi for aircraft’s taxiing phases (see “Towards sustainable practices on the ground” on page 82).

Global climate changes are among mankind’s most momentous challenges. In this context, Lufthansa has been especially active since as early as 1993 through various projects designed to monitor the state of the Earth’s atmosphere. To this end, 15 European project partners under the direction of the Research Center Jülich and with the participation of Lufthansa prepared during a multiyear development phase for the research project IAGOS (In-service Aircraft for a Global Observing System). The long-term observation of the Earth’s atmosphere by means of scheduled flights – a novelty in climate research – began in July 2011: Since then, specially designed measuring instruments aboard the Lufthansa Airbus A340-300 “Viersen” have routinely captured trace substances in the atmosphere during flights – worldwide and on a broad basis. In the future, aerosols and cloud particles will also be recorded. After each landing, these data are

digitally read out, processed and analyzed by experts. The project’s goal is to create a worldwide measuring infrastructure to be able to observe the Earth’s atmosphere globally with support from civil aviation. The data generated in this way are of central importance for climate research and numerical weather forecasts.

In February 2012, the IAGOS partners tested the existing set of instruments aboard the Lufthansa Airbus in conjunction with a “Real Time Transmission Unit” for the first time. The test aims to create the prerequisites for the future transmission of the collected data in real time from the aircraft to the ground. There, the data would be fed into the existing meteorological data networks. This would not only serve to improve weather forecasting further. It would also help to refine current weather information for the next hour, which experts refer to as “now-casting.”



The sonde on the forward left fuselage of the Lufthansa A340-300 “Viersen” takes samples for the climate research project IAGOS.





All the climate research projects supported by Lufthansa are clearly described in the new flyer "Climate research on scheduled flights."

### IGOS workshop on the subject of volcanic ash

The volcanic eruption in Iceland in spring 2010 and its resulting consequences for aviation demonstrated that the expert knowledge on the influence of ash particles and the gases released during such eruptions on aircraft engines is limited. Against this background, the IAGOS research partners examined at Lufthansa's initiative – in March 2011 at the World Meteorological Organization (WMO) in Geneva – the question of whether it would make sense to measure aerosols routinely from aircraft in the future. Among the participants of the three-day workshop were airline representatives, aircraft and engine manufacturers as well as vulcanologists and aerosol researchers. The workshop's goal was to identify synergies and to initiate further research projects. In the end, the most diverse disciplines can draw utility from routine aerosol measurements aboard aircraft. These include climate research (aerosols have a significant influence on cloud generation), materials research (aging and wearing pro-

cesses due to the influence of dust), meteorology (improvements of spreading models), vulcanology and air traffic control.

Further information on the climate research projects supported by Lufthansa are available at [www.lufthansa.com/responsibility](http://www.lufthansa.com/responsibility)

### Lufthansa Technik is testing an innovative paint system

On 1 July 2011, Lufthansa Technik, in cooperation with the Fraunhofer Institute Bremen and Airbus, began testing an innovative paint system in Frankfurt. A new technology makes it possible to apply microstructures that mimic the properties of sharkskin onto an aircraft's coating, thereby reducing flow resistance. As a result, fuel consumption and operating costs also decline. Developed by the Fraunhofer Institute, this solution makes it possible for the first time to apply the long-identified advantages of technically simulated sharkskin in an aviation context. The primary goal of this test phase is to assess the durability and wear of the finely stencilled structure. For this purpose, selected surface areas on two Lufthansa Airbus A340-300s have been equipped with paint patches, which will be checked and analyzed regularly by experts until mid-2013.



"Lufthansa has assumed responsibility once again and put the first IAGOS climate research aircraft into operations. Other airlines will follow this example to help set up an instrument to observe the Earth's atmosphere by means of civil aviation."

Dr. Andreas Waibel  
 Manager Group Environmental Issues  
 Deutsche Lufthansa AG



# Corporate Citizenship

Social commitment

Environmental sponsorship

Cultural commitment

Education

Sports sponsorship



# Social commitment

## Immediate humanitarian aid – fast, uncomplicated, direct

Earthquakes, tsunamis, floods or droughts – whenever natural disasters threaten people's lives, the Lufthansa Group provides immediate humanitarian aid. In 2011, the aviation group again applied its logistics competence to support emergency relief efforts for those in areas affected by disaster.

### **26,000 blankets for earthquake victims in Japan**

On 23 March 2011, a special Lufthansa Cargo flight operating free of charge took off in Frankfurt bound for Tokyo to provide emergency relief in the wake of the devastating earthquake and tsunami. Aboard the MD-11 freighter were 70 tonnes of aid supplies for the Japanese people affected by the catastrophe, including 26,000 blankets, hundreds of sleeping bags and special mattresses to help victims survive the cold and damp. Lufthansa Cargo organized the aid flight in cooperation with the DG Humanitarian Aid & Civil Protection of the European Commission and maintained close contact with the International Red Cross in Geneva and other aid organizations.

### **“Flight against Hunger” reaches people in East Africa**

Fast and unbureaucratic were also the watchwords for Lufthansa Cargo's efforts to bring relief in the face of famine in the Horn of Africa. To lessen the effects of drought for the people in Somalia, Kenya, Ethiopia, Eritrea and Djibouti, Lufthansa Cargo sent an MD-11F to Nairobi on 17 August 2011 with 90 tonnes of aid supplies, consisting mainly of food stuffs, medications and tents. The cargo airline made this flight possible by joining forces with the aid organization “Luftfahrt ohne Grenzen/Wings of Help” and other partners. In a parallel move, the Lufthansa organizations Cargo Human Care (see “Cargo Human Care – Medical aid for people in East Africa” on page 96) and HelpAlliance (see “HelpAlliance – Helping those in need help themselves” on page 93) appealed to the company's employees for donations and set up dedicated accounts for that purpose.

As the situation remained critical, Lufthansa Cargo made a second flight with aid supplies to Nairobi just a month later, on 21 September 2011, in cooperation with “Luftfahrt ohne Grenzen/Wings of Help” as well as Payback and other partners. “The situation in East Africa is still dramatic. As an airline, we have the means

to get donated aid supplies quickly and directly to places where they are urgently needed. So it is natural for us to support this aid transport as well,” says Karl Ulrich Garnadt, Chairman of the Executive Board and CEO of Lufthansa Cargo.

### **Lufthansa Cargo organizes its first Expert Round for Humanitarian Logistics**

Humanitarian logistics plays a key role in helping victims of natural disasters. But what criteria must air transport fulfill as a part of the humanitarian logistics chain so that aid supplies reach their destination without delay? Against this background, the first Expert Round for Humanitarian Logistics took place at the invitation of Lufthansa Cargo on 6 October 2011 in Frankfurt. The objectives were to understand better the needs of international aid organizations and to develop further the company's own commitment. Participants included logistics experts of the International Red Cross, Technisches Hilfswerk (THW), Germany's Federal Foreign Office and Lufthansa Cargo managers. The workshop gave the starting signal for the development of ideas and concepts to further the professionalization of aid transport. Since November 2011, the initiative has received creative support from the Group-wide platform “explorers”: This development program unites young managers from across the Lufthansa Group to work on the subject of humanitarian logistics. The project is expected to conclude in November 2012.





# HelpAlliance – Helping those in need help themselves

The HelpAlliance is a registered charity founded in 1999 by employees from across the Lufthansa Group. Its members volunteer their services, are politically and denominationally independent, and collect donations to be allocated in a meaningful manner to social aid projects.



The focus of these humanitarian activities is on nutritional and health care programs, schools, vocational training facilities, orphanages and street-children projects in Africa, Asia and Latin America. The goal is to promote self-help initiatives so that those in need are later able to improve their living conditions by their own means. The initiatives backed by the HelpAlliance divide into long-term projects and shorter-term, results-oriented project support. The organization also provides emergency aid, as it did following the earthquake and tsunami in Japan in early 2011. To help meet the needs of victims there, the HelpAlliance set up a dedicated donation account and organized a benefit concert with the Lufthansa Orchestra.

The Group has firmly supported the HelpAlliance since its inception. This support comprises the release of employees from work on a full- or part-time basis, the use of offices including technical infrastructure at Frankfurt Airport free of charge, and assistance with logistics and communications. To distribute the association's growing tasks onto a greater number of shoulders, the HelpAlliance's board was expanded from three to five members in November 2011. The association now counts 15 full members and nearly 1,600 supporting members. In 2011, the HelpAlliance supported 45 projects with a total amount of 1.5 million euros.

## Drought in East Africa

In 2011, the HelpAlliance made the Horn of Africa an area of emphasis in its activities, as the people there suffer from the effects of dramatic drought conditions. Tens of thousands have already died and more than 12 million are suffering from famine. To mark its solidarity with the local population, the HelpAlliance called upon the Group's employees to make donations and set up a dedicated account. The enormous willingness to help shown by Lufthansa employees made it possible among other things to support a water project at the refugee camp Kakuma in the border area between Kenya and Somalia. Thanks to these donations, 20,000 people could be provided with water for six months. Lufthansa Systems employees in Frankfurt and Hamburg also demonstrated marked commitment. In cooperation with the HelpAlliance, they collected donations in the amount of 20,000 euros for this project.

Getting active for others despite one's own difficult living conditions: That was the maxim applied by the teachers of the Watoto project supported by the HelpAlliance near the coastal city of Mombasa. Instead of watching idly as their countrymen starve to death, they gave up part of their salaries and together with their pupils' parents collected money in order to organize three aid convoys to the north of Kenya. The HelpAlliance provided additional financial support for this campaign as well.



Teachers of the Watoto project near the coastal city of Mombasa selflessly organized several aid convoys to the north of Kenya with support from the HelpAlliance.



Haiti: Reconstruction project of the primary and secondary school in Gressier. In February 2011, 350 pupils were able to move from tents into the new school building, and 80 pupils found a new home at the attached boarding school.

### New minivan for school meals project

Another success story in 2011 was a call for donations by the HelpAlliance to benefit the Supported Project “Rays of Hope” – a school meals project at the Riversands Primary School on the outskirts of the Diepsloot township near Johannesburg. There, an aged minivan had to be replaced as quickly as possible. It was used to get warm meals to 650 primary school pupils three times a week. The money to buy a new multipurpose vehicle (MPV) was collected in record time. This was due not only to the contributions of many socially active Lufthansa employees but also to the generosity of an HON Circle member who learned about the school’s predicament and spontaneously donated more than 20,000 euros. “We were very touched by this gesture. It illustrates impressively how positively the HelpAlliance and its commitment are perceived by Lufthansa customers,” says Rita Diop, First Chairwoman of the HelpAlliance.

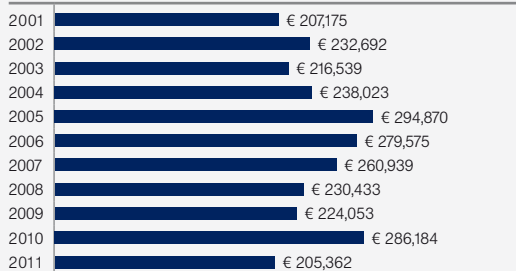
### On-board collection program “Small Change – It’s a Big Help”

“Small gesture, big result” is the concept for a campaign that allows passengers to donate coins and bills in any currency – “leftover money” they carry on long-haul flights home – to a good cause. This is made possible by the onboard collection program “Small Change – It’s a Big Help.” Since 2001, small sealable donation envelopes have been available in the seat pockets on long-haul aircraft; cabin crews then collect and forward all donations to the HelpAlliance. In addition, donation pillars in staff areas, in the Lufthansa lounges at all German airports and in the public areas of the Frankfurt and Munich hubs invite those who pass by to support the association’s social projects with their donations.

The HelpAlliance and the humanitarian organization “b.foundation for Africa” at Brussels Airlines have joined forces in the area of onboard collections since September 2011. This allows the passengers of Belgium’s largest airline to donate coins and bills in any currency to the HelpAlliance as well; previously, this had been possible only on Lufthansa and Condor long-haul flights.

#### On-board collection program

Development of donation revenues<sup>1</sup>



October 2003: beginning of Condor’s participation  
September 2011: beginning of Brussels Airlines’ participation

<sup>1</sup> As the final figures were not yet available at the close of copy, all figures mentioned for 2011 in this article are preliminary.

### Long-term support for Haiti

Two years after the devastating earthquake in January 2010 in Haiti, about half a million Haitians are still living in provisional accommodations. Employees across the Lufthansa Group collected about 220,000 euros to lessen the effects of this natural disaster; the Group’s Executive Board doubled this amount to 440,000 euros. Part of these funds were used to reconstruct and to equip six small-scale schools run by the Salesians of Don Bosco. Both projects were successfully concluded in August 2011. The donations also made it possible to reconstruct a primary and secondary school for 350 children and adolescents that had been destroyed in Gressier, near the earthquake’s epicenter.

### Pakistan: Medical care for 10,000 families

Following the exceptional flooding in August 2010 in Pakistan, the HelpAlliance again reacted promptly to help the people in the stricken areas with a total of about 140,000 euros. Just one year after the most severe inundations in the country’s history, large parts of Pakistan were again flooded after intense monsoon rainfall. “Once again, we helped right away and among other projects equipped a mobile clinic with medical instruments and medications to look after 10,000 families in 150 villages,” explains Rita Diop. “In addition, we were able to finance the salaries of the medical staff for a full year.”





### **Indispensable: Continuous collection of donations**

It is the willingness of the Lufthansa Group's employees and Executive Board that makes the HelpAlliance's work possible in the first place. At the same time, the number and intensity of natural disasters are on the rise. This increases the need to help and, in turn, the charity's financial needs. To ensure that it will be able to cover these needs in the future, the HelpAlliance significantly increased its online activities in 2011, among other measures. For example, it is now possible to make donations in a quick and easy way by using the online payment system PayPal. Setting up this new donation channel was preceded by a potentials analysis carried out by the participants of "explorers," Lufthansa's platform for young managers. Additionally, Lufthansa Marketing gave communications support to the HelpAlliance's activities in the social media, such as Facebook.

The festivities celebrating the 100-year anniversary of Hamburg Airport on 25 September 2011 were an opportunity to combine business with pleasure: Sightseeing flights over Hamburg with a Lufthansa Airbus A380 generated revenues of 50,000 euros, which were split evenly between the HelpAlliance and a local help organization. In addition, Lufthansa took advantage of the current employee survey to generate donations. The HelpAlliance received one euro for each completed and returned questionnaire. Furthermore, a bilingual newsletter targeting the Lufthansa Group's managers and providing information about the charity's activities was launched in August 2011. It is published twice a year, and in its first issue Christoph Franz, Chairman of the Executive Board and CEO of Deutsche Lufthansa AG, called upon readers to support the HelpAlliance.



Helping hands also in Vietnam: The HelpAlliance project "Saigon Children's Charity" supports and looks after children with disabilities, and guides them on their paths toward self-determined lives.

The HelpAlliance's Annual Report accounts for the organization's activities. Lufthansa also sponsors the production of this report.

[www.help-alliance.com](http://www.help-alliance.com)



### **Marathon in Cape Town: Lufthansa employees collect donations for HelpAlliance project**

On 23 April 2011, Lufthansa employees proved once again that they spare no effort to support the HelpAlliance. This time it was nine members of the runners group of the Lufthansa Sports Association in Hamburg who participated in the "Two Oceans Marathon" in Cape Town. Prior to the event, they collected 1,535 euros for the benefit of the iThemba preschool near Cape Town, a joint project of the HelpAlliance and Lufthansa Global Tele Sales (GTS) that opened in March 2010. Located in a township, this preschool offers 75 children between the ages of three and six a safe place to learn and play in a carefree manner.

## Cargo Human Care – Medical help for people in East Africa



Something that is taken for granted in Germany and other industrialized countries often remains inaccessible to people in other parts of the world: basic health care. To help sick and injured people in a direct and unbureaucratic manner despite this situation, employees of Lufthansa Cargo joined forces with German physicians in 2007 to found the registered charity Cargo Human Care (CHC).

This aid project was initiated by Fokko Doyen, MD-11F Captain and Fleet Chief at Lufthansa Cargo. During a layover in 2004, he discovered the Mothers' Mercy Home (MMH) and decided to actively support the small orphanage on the outskirts of Nairobi. On 6 December 2011, the CHC's first Chairman was awarded the Order of Merit of the Federal Republic of Germany for his work. "Fokko Doyen has worked tenaciously for humanitarian aid in Kenya and gained many supporters in this way. His selfless commitment has also made him a worthy ambassador of our country," emphasized Michael Boddenberg, Hesse's Minister of Federal Affairs and State Representative to the German Federal Government, in his eulogy.

Currently, Cargo Human Care has 400 members. The focus of its charitable work is on two institutions that are entirely dedicated to the well-being of children and disadvantaged people in the surrounding area: the Mothers' Mercy Home and the Cargo Human Care Medical Centre in the immediate vicinity of the orphanage. In addition, CHC supports the Medical Centre of the SOS Children's Village Buru Buru.

Lufthansa Cargo has firmly supported the association since its foundation. The logistics service company not only provides cargo capaci-

ties aboard its MD-11F freighter aircraft but also covers the cost of air tickets for German medical specialists. Three times a month pediatricians, ENT specialists, dentists, gynecologists, general practitioners, ophthalmologists, urologists, anesthesiologists and HIV specialists fly for three-day stints to Africa to practice on a volunteer basis.

### Launch of child sponsorships

A further area of emphasis for CHC during the reporting year was the launch of medical sponsorships. In the area surrounding Mothers' Mercy Home live many sick, handicapped and neglected children who urgently need medication and clothing. Whenever the physicians and staff of the Medical Centre learn about especially precarious cases, Cargo Human Care does all it can to lessen the immediate needs of these boys and girls. The aid project also aims at enabling the children to attend a day school or boarding school and at finding an educational sponsor in Germany to cover the associated costs. The plan is to place at least 30 medical and about 45 educational sponsorships by the end of 2012. The cost per child ranges from 25 to 75 euros per month; should a sponsor drop out, Cargo Human Care steps in. As soon as a sponsored child successfully completes school or vocational training and becomes independent, the sponsorship ends automatically.

### Reading competition and summer camp at Mothers' Mercy Home

Aiming to improve the reading competency and to promote the reading pleasure of the children at the Mothers' Mercy Home long-term, the institution organized a public reading competition in June 2011 for 30 pupils in grades 7 and 8. The CHC also made it possible to buy books that are recommended for teaching at Kenyan schools, thus increasing the holdings of the library of the Mothers' Mercy Home.

Following last year's marked success, Cargo Human Care organized a second summer camp at the MMH in August 2011. Eight workshops offered the children opportunities to be creative and to test and improve their handicraft skills.



In front of the Cargo Human Care Medical Centre on the outskirts of Nairobi, patients are waiting to be treated.



A special offer was designed for the orphanage's adolescents. Under the skilled guidance of a local carpenter, they built shelves and a work surface for the MMH's planned woodworking workshop.

#### **In the pipeline: The MMH's modernization**

A number of buildings at the Mothers' Mercy Home are beginning to show their age – not least due to the tropical climate, which gnaws away relentlessly at the structures. To secure the project's future, Cargo Human Care is planning to rebuild or replace old buildings on the orphanage's site step by step. This process is to begin with the kitchen; other buildings are slated to follow by around mid-2014.

#### **Food supplies for 224 families in the north of Kenya**

Given the drought and famine in East Africa, Cargo Human Care has worked closely with the Anglican Diocese of Marsabit since August 2011 to supply corn, beans and oil once a month to 224 families living in two villages in northern Kenya. For this purpose, employees at Lufthansa Cargo and friends of CHC have tirelessly collected donations. The diocese coordinates the purchase, transport and distribution of the aid supplies to local families. Currently, the CHC and its partners in the drought-stricken areas are looking for ways to ensure the food supply over the long term, such as by constructing wells so that families can water their fields themselves.

[www.cargohumancare.de](http://www.cargohumancare.de)



#### **Lufthansa Cargo: 30 years of cooperation with “Werkstätten für Behinderte Rhein-Main”**

The cooperation between Lufthansa Cargo and the registered charity Werkstätten für Behinderte Rhein-Main (Sheltered Workshops) has already spanned three decades. About 100 employees with disabilities produce more than 250,000 yellow lashing straps a year in Mörfelden-Walldorf. Used for loading purposes, these straps are indispensable for securing air freight expertly on Lufthansa and Lufthansa Cargo flights. To mark the anniversary, the transport service company organized a big party on 7 June 2011 in Mörfelden with more than 500 guests. “For us, the Werkstätten für Behinderte Rhein-Main are much more than a supplier offering the highest level of product quality,” said Peter Gerber, board member responsible for Finance and Human Resources at Lufthansa Cargo. “Over the past three decades, a genuine partnership and friendship has developed between the employees at the workshop and those at Lufthansa Cargo.” This tried-and-tested partnership will remain an important part of the company's social commitment.

Currently, the Werkstätten für Behinderte Rhein-Main give about 400 people with physical or mental disabilities an opportunity to gain a professional qualification and to work in a secure job.

#### **SWISS: “Werkstätte Drahtzug” in Zurich produces recycled bags for a good cause**

SWISS cooperates with the association “Werkstätte Drahtzug” in Zurich. There, employees with severe psychological disabilities manufacture colorful and trendy recycled bags by hand on behalf of the Lufthansa Group airline. Once taken out of service, large SWISS advertising banners made from weatherproof fabric serve as raw material for these bags. Unsurprisingly, the first 500 bags, each a unique specimen, sold out quickly. Part of the revenue generated by each bag goes to the SOS Children's Villages. SWISS has supported this international children's aid organization for many years. For example, the airline has made donation envelopes available aboard its aircraft, collected leftover amounts in any currency and forwarded these donations to the SOS Children's Villages. In addition, the airline commits itself to the independent SWISS Children's Foundation by providing financial, infrastructure and logistics support. The foundation allows SWISS employees to work for SOS Children's Villages on a volunteer basis.



# Environmental sponsorship

## Responsibility for biodiversity, today and tomorrow

The diversity of animal and plant species, ecosystems and genetic resources has an inestimable value for the long-term existence of all living beings on Planet Earth. Pursuing the goal of protecting and preserving biodiversity sustainably, the Lufthansa Environmental Sponsorship Program has supported German and international environmental and nature conservation organizations for more than 30 years. One area of emphasis are the activities aimed at protecting migrating animal species, such as the crane, and their habitats.



**Kranichschutz  
Deutschland**

### **A matter of the heart: Crane protection**

Saving the crane has been a matter of the heart for Lufthansa for over 30 years. At least 11 of the world's 15 crane species are threatened in their existence. To make an effective contribution to the survival of these majestic large birds, the company joined forces with Naturschutzbund Deutschland (NABU) and the environmental foundation WWF Deutschland in 1991 to found the

Crane Protection Germany Working Group. Ever since, the Lufthansa Environmental Sponsorship Program has been particularly committed to the Crane Information Center in Groß Mohrdorf, which is run by the Working Group.

In 2011 alone, the facility drew more than 14,000 visitors into its spell. And for good reason, as the center offers the chance to observe the "birds of good luck" in the Rügen-Bock region of Mecklenburg-Western Pomerania, without disturbing them. Moreover, information and education take an increasingly important place in the center's daily work. From 25 September to 2 October 2011, the "13<sup>th</sup> Week of the Crane" offered a wide-ranging program consisting of crane observation, slide shows and information events. A special highlight was the premiere of the film "Crane Journey Through Europe," whose production was sponsored by Lufthansa. Now available on DVD, this new documentary produced by Crane Protection Germany uses impressive images to describe the yearly cycle in the life of the Eurasian crane.

About 100 crane experts from all over Germany met from 21 to 23 November 2011 at the 21<sup>st</sup> Annual Conference of the Crane Protection Germany Working Group. The key topic was "Cranes and Agriculture." In addition, the delegates adopted a number of resolutions concerning the protection of this large nomadic bird. The conference also provided the framework to celebrate "20 Years of Crane Protection in Germany" and to honor the numerous volunteer helpers of the organization in an appropriate way.

Lufthansa also supported the design and production of "Crane Duet" in 2011. This new memory and learning game contains 48 cards and presents images of all 15 crane species. It was developed by Crane Protection Germany in cooperation with children at the day care center in Groß Mohrdorf. "Crane Duet" is available from Crane



### **In addition to the Crane Protection Germany Working Group, Lufthansa supports the crane protection projects of the following environmental and nature conservation organizations:**

EuroNatur Foundation

Project countries: Spain and Israel

[www.euronatur.org](http://www.euronatur.org)

**EURONATUR**

Society for the Protection of Nature in Israel (SPNI)

Project country: Israel

[www.birds.org.il](http://www.birds.org.il)



NatureLife-International

Project country: South Africa

[www.naturelife-international.org](http://www.naturelife-international.org)



International Crane Foundation

Project country: USA, worldwide

[www.savingcranes.org](http://www.savingcranes.org)



South African Crane Working Group

Project country: South Africa

[www.ewt.org.za](http://www.ewt.org.za)



Protection Germany and costs 12.80 euros; each set contains a bilingual (German/English) information leaflet. Nearly half the sets produced were flown to the U.S. aboard a Lufthansa plane for delivery to the partner organization International Crane Foundation. [www.kraniche.de](http://www.kraniche.de)

#### **UNEP/CMS Thesis Award:**

##### **Protecting the animal world's nomads**

The UNEP/CMS Thesis Award was given for the third time in November 2011. Since 2004, Lufthansa has endowed this international doctoral thesis award, which is given every three years and offers prize money of 10,000 euros. The goal is to gain deeper insights into the biology, reproduction and feeding behaviors of the world's 8,000 to 10,000 migratory animal species, whose habitats are ever more threatened. Increasing academic knowledge is indispensable to developing and implementing effective measures to protect such species as migratory birds, marine mammals and bats. Via this research award, Lufthansa makes an important contribution to supporting the Convention on the Conservation of Migratory Species of Wild Animals (CMS), whose signatory nations have committed themselves to the protection of migratory species since 1979.

The 2011 UNEP/CMS Thesis Award was given to British biologist Dr. Lucy King. She developed a model allowing the limitation of the areas affected by crop damage caused by elephants. It is based on these "thick-skinned" animals' natural fear of honey bees. Intelligently positioned, these self-defending insects act as a living barrier, spoiling the elephants' appetite for lush green areas. Conflicts between humans and animals can thus be defused even before they arise.

[www.cms.int](http://www.cms.int)

#### **NatureLife International:**

##### **Secondary forests for more biodiversity**

Turning remaining patches of primary forest into species-rich secondary forests: That is the goal of Rainforestation Farming, a pilot project of the environmental foundation NatureLife International supported by the Lufthansa Environmental Sponsorship Program for more than ten years. This method was developed by the foundation's environmental experts, in cooperation with Hohenheim University and Visayas State University, on the island of Leyte in the Philippines.

Rainforestation Farming, which calls for the reforestation of cleared areas of rainforest, has also been successfully applied since 2007 in western



In 2011, the Crane Information Center in Groß Mohrdorf cast its spell on more than 14,000 visitors.

China in an area bordering with Laos and Myanmar. This method makes it possible to fix eroded soil long-term and to absorb CO<sub>2</sub> already present in the atmosphere, thereby boosting climate protection. Furthermore, this form of sustainable cultivation creates jobs that secure a livelihood for the rural population over the long term.

#### **Ever-widening circles: Traveling exhibition "World Champions of Nature"**

NatureLife International is firmly committed to consistent environmental education. Its goal is to sensitize people to the topics of sustainability, environmental care and nature conservation and to increase their knowledge in these areas. To this end, the foundation built on the German people's passion for sports and with support from Lufthansa designed and produced the traveling exhibition "World Champions of Nature." The show has been fascinating visitors since August 2010 with its insights into the extraordinary physical abilities of animals. This linking of high performance in sports with like phenomena in nature has been so well received by the public that the exhibition was again shown in 2011 in numerous locations. These included the Federal Press Agency in Berlin, the Nature Protection Center Eriskirch in Aachen and the Esterházy Museum at Schloss Lackenbach in Austria. Plans call for an even more pronounced international use of the show and the further development of individual exhibition modules for this purpose.

[www.naturelife-international.org](http://www.naturelife-international.org)



# Cultural commitment and education

## Lufthansa builds bridges between cultures and generations

Giving support to culture and education is a significant part of Lufthansa's commitment to society. As an aviation group with international activities, the company creates innumerable connections every day – not only between cities, countries and continents but also between people of the most diverse origins and backgrounds, as the following examples illustrate.



### Two “brands” in harmony: Lufthansa and Cologne's Gürzenich Orchestra

Since October 2010, Lufthansa has been the Gürzenich Orchestra's First Global Partner, representing its first long-term commitment to a German symphony orchestra. In 2011, the company continued its support for “Cologne's most desirable concert brand” and thus played a significant part in promoting the musical life and rich traditions in the city that is home to its corporate headquarters. The year's brilliant highlight was the festive concert on 24 September 2011 to mark the 25-year anniversary of the Kölner Philharmonie. About 120 HON Circle and Senator customers, Cologne Mayor Jürgen Roters and representatives from local and state politics in North-Rhine Westphalia listened spellbound to a performance of Gustav Mahler's 8<sup>th</sup> Symphony, the “Symphony of a Thousand.” Inaugurated in 1986 with the same rarely performed work, the Kölner Philharmonie has been home to the Gürzenich Orchestra ever since.

“Lufthansa and the Gürzenich Orchestra are partners with a shared basic concept: Both are premium brands with a high level of public visibility and a high demand for quality. At the same time,

alongside their regional roots, both stand for internationality and a pronounced willingness to innovate,” said Stephan Gemkow, Chief Financial Officer of Deutsche Lufthansa AG, in his pre-concert welcome speech to concertgoers at Museum Ludwig.

[www.guerzenich-orchester.de](http://www.guerzenich-orchester.de)

### Lufthansa Festival of Baroque Music

The 27<sup>th</sup> edition of the Lufthansa Festival of Baroque Music took place from 13 to 21 May 2011 in London, taking listeners on “A Voyage through Europe's Heart.” Twelve concerts illustrated the entire breadth of European baroque music, from the Baltic to the Adriatic. It was performed in important churches such as St. John's Smith Square and the venerable Westminster Abbey and was followed by hundreds of thousands of listeners worldwide thanks to the BBC's radio broadcasts. “Lufthansa is a global company with a truly European character, so the festival's motto fits perfectly with the airlines in our group,” says Christoph Franz, Chairman of the Executive Board and CEO of Deutsche Lufthansa AG. Together with its system partner Rolls-Royce, the company has supported the festival,



Gürzenich Orchestra: A festive concert on 24 September 2011 marked the 25-year anniversary of the Kölner Philharmonie.





The Collegium Vocale Gent under the direction of Philippe Herreweghe opened the Lufthansa Festival of Baroque Music 2011 with a sold-out performance.

which is renowned far beyond the British capital, since its inception.

In 2011, numerous renowned artists enthralled London's knowledgeable audiences, which included many customers, business partners and friends of Lufthansa. The festival was opened by the noted Bach specialist Philipp Herreweghe with his choir and orchestra Collegium Vocale Gent. Gustav Leonhardt, one of the outstanding pioneers of historical performance practice, gave one of his last concerts at the festival. Another highlight was the concert entitled "Music from Salzburg," which united the world-famous choir of Westminster Abbey and musicians of St. James's Baroque in a performance of works by Bertali, Biber and Schütz. The 28<sup>th</sup> Lufthansa Festival of Baroque Music took place from 18 to 26 May 2012. In the year of the Olympic Games in London, it featured music reflecting the themes of competition as well as the peaceful coexistence of nations. [www.lufthansafestival.org.uk](http://www.lufthansafestival.org.uk)

#### **Lufthansa New Year's Concert**

For connoisseurs of classical music, the annual Lufthansa New Year's Concert has become a regular institution. The 15<sup>th</sup> edition of this highly regarded event was marked by Russian music, such as Dimitri Shostakovich's "A Spin Through Moscow" and Peter Tchaikovsky's well-known Concerto for piano and orchestra No. 1 in b minor, op. 23. On 17 January 2012, about 1,200 invited guests – including many Lufthansa status customers as well as representatives from politics, business and culture – found their way to Berlin's Konzerthaus am Gendarmenmarkt.

#### **Lufthansa again participates in "Kunst privat!"**

Lufthansa again took an active role in shaping the seventh edition of "Kunst privat!" ("Private Art!"), which took place on 28 and 29 May 2011. Interested visitors thus had an opportunity for the fourth time already to view the art collection housed in the Lufthansa Aviation Center (LAC) in Frankfurt, which is ordinarily not open to the public. The initiative, in which about 35 international corporations and regional companies in Frankfurt, Wiesbaden and Darmstadt participate, is organized by Hesse's Ministry of Economics, Transport and Development. The particularity of the Lufthansa exhibition concept: Unlike movable objects, such as paintings or sculptures, the exhibits at the LAC represent "art in architecture," or works of art that are so well integrated into the building that they often only become visible to viewers at a second glance. "Every year, the campaign 'Kunst privat!' is a highlight for Lufthansa and an extraordinary platform to present ourselves to the public from an unusual perspective," says Hildegard Lamberty at the Lufthansa Visitors' Service. "We'll be joining the event again in 2012."

#### **Numerous prizes for the finalists of the Federal Public Reading Competition**

In 2011, Lufthansa supported the Federal Public Reading Competition for the first time. This highly regarded competition is an initiative of the German Publishers and Booksellers Association in cooperation with schools, libraries, book stores and other cultural institutions. Last year, about 640,000 students from 7,500 elementary, secondary and high schools participated in the country-wide competition. The finals of the event's 52<sup>nd</sup> edition took place on 22 June 2011 at the German National Library in Frankfurt. As a partner of the national finals, Lufthansa provided



"Door-opener Day" at Lufthansa Technik in Hamburg for "Mouse TV."

numerous prizes. For example, the company donated air tickets for the two winners for a trip within Europe accompanied by their parents and siblings.

[www.vorlesewettbewerb.de](http://www.vorlesewettbewerb.de)

#### **"Door-opener Day" at Lufthansa Technik in Hamburg**

On 10 July 2011, to help mark the 40<sup>th</sup> anniversary of the widely popular children's educational series "Mouse TV," Lufthansa Technik participated in the first-ever "Door-opener Day." Launched by series producer Westdeutscher Rundfunk, this cross-industry initiative attracted about 250 host companies and institutions, including factories, laboratories, city halls and bakeries nationwide. At Lufthansa Technik, the "Door-opener Day" took place under the motto "Look, Touch, Try" and drew 25,000 visitors to its Hamburg location. There, mouse fans of all ages were offered such rare learning opportunities as visiting an aircraft cockpit. They also found out how engines function or how a hole in the aircraft fuselage would be repaired. "At Lufthansa Technik, we too always have many questions and ideas, and so 'Mouse TV' fits us very well. I'm proud that so many people came to visit us," said Dr. Thomas Stüger, member of the Executive Board responsible for Products and Services at Lufthansa Technik.

#### **Lufthansa Systems bestows three "Scholarships Germany"**

In the context of the program "Scholarship Germany," Lufthansa Systems supports three topflight students majoring in information technology or physics at Darmstadt's Technical University for one year each. The program, an initiative of Germany's Federal Ministry of Education and Research, provides scholarship holders half of their support from Germany's Federal Government and half from a private-sector company. Linked to the scholarship is the opportunity to gain firsthand information about IT specialist Lufthansa Systems and its technical innovations.

#### **Learning from students: SWISS supports simulation of UN climate negotiations**

Students at the universities in St. Gallen (HSG) and Cologne, ESADE Barcelona and the Warsaw School of Economics managed in just two days what thousands of delegates at the UN climate conferences have not been able to accomplish for years: the successful conclusion of a global treaty to reduce CO<sub>2</sub> emissions. The simulated negotiations are part of the CEMS Master Program for International Management, which is offered as a cooperation between leading business schools, multinational companies and non-government organizations. In 2011, SWISS supported the negotiation team of St. Gallen University as a part of its social commitment. The university course entitled "Model UNFCCC" aims at sensitizing students to the problems of climate change and enabling them, as our hope for the future, to help shape the contents of an international climate protection treaty.

[www.cems.org](http://www.cems.org)

[www.unisg.ch](http://www.unisg.ch)





# Sports sponsorship

## Partner of top-level sports

Sports sponsorship has a long tradition at Lufthansa. The company has been committed to top-level sports ever since the 1972 Olympic Games in Munich. It continues to assume its social responsibility in this area and is today a partner of many leading national institutions, associations and societies.



### German Sports Aid Foundation

At the beginning of 2012, Lufthansa extended its partnership with the German Sports Aid Foundation by another four years – as the first National Sponsor ever to do so. The foundation supports more than 4,800 athletes. A specific goal is to accompany young talents, with and without disabilities, all along their path toward top athletic performances. Therefore, the company is again planning to take on the sponsorships for ten potential Olympic medal winners from the German Sports Aid Foundation's elite program for talented young athletes in the coming years. The German Sports Aid Foundation gives a perfect framework of conditions for supporting top athletes across the entire spectrum of sports in Germany, sustainably and efficiently.

A further area of emphasis in this context is to assist the campaign "Your Name for Germany" until 2015 with even more intensive communications measures and to promote it in diverse ways. For example, the company targets employees, passengers and customers with the message that they can "sponsor" one of Germany's top athletes for only three euros a month. For many years Lufthansa has also supported numerous events of the German Sports Aid Foundation, such as its "Sports Ball," which most recently took place on 4 February 2012 in Frankfurt and serves to collect donations for the sports foundation.



### National Paralympic Committee Germany

Lufthansa is a cosponsor of the National Paralympic Committee Germany, which celebrated its 60<sup>th</sup> anniversary during the reporting year. Lufthansa supported the official celebrations on 9 September 2011 in Berlin as well as the election of the "Handicapped Athlete of The Year" on 26 November 2011 in Cologne. Furthermore, the Group supports the project "GOLD – You can do more than you think," a documentary film about the life of three world-class athletes with disabilities. It aims at increasing public acknowledgment of athletes with handicaps, reducing prejudices and contact anxiety, and advancing the inclusion of athletes with disabilities. Shooting for this film, which will premiere at the 2013 Berlinale, has already begun. Lufthansa supports this project mainly with communications measures, such as regular reports in its internal media, including the employee newspaper Lufthanseseat and the in-flight magazine. In addition, information stands at the Frankfurt Half-Marathon and at the Lufthansa Inclusion Day draw attention to the project.



Information stand on the documentary film "GOLD – You can do more than you think" in the context of the Lufthansa Inclusion Day 2012.



### Company and mass sports

People who engage in sufficient sporting activities are physically fitter and suffer less often from back problems. This is proven by studies. Furthermore, the number of people missing work because of illness is lower, while work motivation increases and the work climate improves. For these reasons, Lufthansa has traditionally offered a broad range of sports disciplines to promote and secure the ability to perform and fitness for work of its employees over the long term. The Group employees' enthusiasm for sports is also illustrated by the fact that 6,500 of them are active members of the 13 company sports associations with varying numbers of disciplines in Germany. For example, at the location in Frankfurt there was a choice of 49 types of sports in 2011 to help improve one's fitness.

There is also undiminished popularity for the campaign "Lufthanseaten laufen" ("Lufthansa employees run"), which was set up in 2009. Furthermore, the JP Morgan Corporate Challenge in Frankfurt, Europe's largest inter-company run, was a fixed date in the calendar of many Lufthansa running enthusiasts in 2011 as well. In addition, some employees participated for the fourth time already in the "Komen Race for the Cure" in Frankfurt, whose proceeds benefit breast cancer education and research.

In addition Lufthansa is firmly committed to the long-term promotion of mass sports in the Rhine-Main region. For this reason, the company has been the title sponsor of the Frankfurt Half-Marathon since 2009. In 2012, the year of its 10<sup>th</sup> anniversary, this event drew a record 4,350 participants, including 250 Lufthansa employees.

One of the film's protagonists will strengthen the Lufthansa team participating in the company run JP Morgan Corporate Challenge 2012.



### German Olympic Sport Confederation

The aviation group also assumes its social responsibility with regard to top Olympic performances. For this reason, the company has been an official copartner of the German Olympic Sport Confederation and of the National Paralympic Committee since 2006. Moreover, Lufthansa has been an official copartner of the National Olympic Committee for many years. And in its role as "Official Carrier," the "Airline of Sports" traditionally flies the German national teams to Olympic and Paralympic Games, which will also include the 2012 Summer Olympic Games in London. Finally, as a National Sponsor, Lufthansa supports the applications of German cities as venues for Olympic Games. This was the case in 2011 when Munich applied for the 2018 Winter Olympic Games.

### German Soccer Association

To continue the partnership with the German Soccer Association that has been in effect since 2005, Lufthansa extended its contract with the association on 27 May 2011. The Group will thus remain the German Soccer Association's "Official Partner" until the Soccer World Championship in 2014 in Brazil. In practice, this means that the German national soccer teams and the association's members will fly exclusively with Lufthansa to all games at home and abroad. For the first time, the cooperation with the German Soccer Association now also includes the women's national soccer team. The company also seized the opportunity to fly the Japanese national women's soccer team back home after they won their world champion title in 2011.

### FC Bayern München and Eintracht Frankfurt

Soccer moves people – so does Lufthansa. Therefore, it is only logical that the company has been the "Official Carrier" for the professional players of FC Bayern München since 2004, flying them to all First Division and cup finals in Germany and to all international games of the UEFA Champions League in Europe. Beyond that, Lufthansa has been the official partner of Eintracht Frankfurt since 2008.

**For further information visit**  
[www.lufthansa.com/sport](http://www.lufthansa.com/sport)





# Glossary

**AEA** – Association of European Airlines  
[www.aea.be](http://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 sulfate. From a climatic perspective, aerosols are the opponents of greenhouse gases, as they can reflect incident light and thus have a cooling effect.

## **AIRE** – Atlantic Interoperability Initiative to Reduce Emissions

Transatlantic program in the framework of SESAR to reduce emissions from air transport.

## **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](http://www.aireg.de)

## **ASPI** – Advanced Sustainable Performance Indices

Lufthansa features in the ASPI Index, which was set up in 2001. This index depicts the financial performance of the 120 best companies of the Dow Jones EURO STOXX according to the criteria of sustainability. The prerequisite for being listed in the ASPI Index is the systematic integration of the long-term interests of stakeholders in the context of corporate policy, strategy and activities. The index is run by the agency Vigeo in cooperation with Stox Ltd.

[www.vigeo.com](http://www.vigeo.com)

## **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 8 to 12 kilometers above sea level at the poles. The temperature in the tropopause, the transition layer between troposphere and stratosphere, drops to only 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 8 and 13 kilometers. According to the latest research, air traffic emissions do not contribute to the reduction of the ozone layer.

**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. At currently 450 members, it is the largest of its kind in Europe. Lufthansa has been a member of the Working Group since 1997.  
[www.baumev.de](http://www.baumev.de)

**BDL** – Bundesverband der Deutschen Luftverkehrswirtschaft – Federal Association of the German Aviation Industry  
[www.bdl.aero](http://www.bdl.aero)

## **Carbon dioxide (CO<sub>2</sub>)**

Gas resulting in nature from the burning or decomposition of organic masses (e.g. plant material) and from the breathing process of humans and animals. The greenhouse gas CO<sub>2</sub> remains for about 100 years in the atmosphere. Scientists attribute the increase of atmospheric CO<sub>2</sub> 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<sub>2</sub> result from the combustion process. Currently, about 2 percent of man-made CO<sub>2</sub> emissions are due to worldwide air traffic.

Source: IPCC/WRI 2007

## **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 only possible if there are no constraints due to high air traffic in the airspace concerned.

## **Chapter 4 aircraft**

Aircraft that meet the regulations of 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 from 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 take-off weight and number of engines.

### **CDP – Carbon Disclosure Project**

The CDP is an independent organization working for the public welfare, whose members are more than 550 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 reduce them lastingly. For this purpose, CDP and its partners developed two indexes: "Carbon Disclosure Leadership Index," which lists companies that have made their emissions transparent in a particular way, and the "Carbon Performance Leadership Index," which takes into account concrete climate protection performance.

**CO see "Carbon monoxide"**  
**CO<sub>2</sub> 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 to which degree 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, continuously conducts worldwide surveys and thus assesses 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 about the current status of customer satisfaction.

### **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 the sound's 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.

### **Deutsches Netzwerk Wirtschaftsethik (DNWE) – German Network for Business Ethics**

DNWE is a nonprofit organization, in 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](http://www.dnwe.de)

### **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 – German Aerospace Center**

The DLR serves scientific, economic and social purposes. It maintains 30 institutes, testing facilities and operational sites. Its 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](http://www.dlr.de)

### **Dow Jones Sustainability World Index**

The leading sustainability index worldwide lists the top 10 percent of companies in each industry, whose sustainable approach to corporate management is exemplary.

### **econsense – 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](http://www.econsense.de)

### **EMAS – Environmental Management and Audit Scheme**

Colloquially referred to as EU eco-audit regulations. European regulations concerning environmental management and certification.

### **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 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](http://www.ethibel.org)

**FAB** – Functional Airspace Block

Instrument of the Single European Sky to evolve the fragmented ATM over Europe, oriented by national airspace boundaries, into a cross-border coordinated ATM. Currently, there are nine different FAB projects in the EU that have reached different levels of development. According to SES regulations, the EU member states must take the measures necessary to implement the FABs by December 4, 2012.

**FABEC** – Functional Airspace Block Europe Central

Shared airspace that Germany, France, Belgium, Luxembourg, the Netherlands and Switzerland intend to set up by December 2012.

**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**

Index introduced by the Financial Times and the London Stock Exchange in 2001. The FTSE4Good lists only companies with above-average performance in the areas of human rights, social standards and environmental protection. Lufthansa has been listed since 2001.

[www.ftse4good.com](http://www.ftse4good.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 airspace 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 determined so far in plant or soil samples after fuel dumps.

**Global Compact see "UN Global Compact"****Great Circle Distance**

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<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>); the most important anthropogenic greenhouse gas is carbon dioxide from the combustion of fossil fuels. It accounts for about 77 percent of the greenhouse effect attributable to human activities. Methane, primarily generated by agriculture and large-scale animal husbandry, contributes about 14 percent to the anthropogenic greenhouse effect. Other artificial greenhouse gases are nitrous oxide (N<sub>2</sub>O), fluorocarbons (FCs and HFCs), sulfur hexafluoride (SF<sub>6</sub>) and chlorofluorocarbons (CFCs). Source: World Resources Institute (WRI), 2005.

**HON Circle Member**

HON Circle Member is the highest status level that the frequent flyer program Miles & More awards to Lufthansa customers. [www.miles-and-more.com](http://www.miles-and-more.com)

**Hub**

In air transport, a hub refers to a central traffic point or an airline's transfer airport. Passengers as well as freight are transported from their original starting point 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.

**IATA** – International Air Transport Association

The umbrella organization of international commercial aviation.

[www.iata.org](http://www.iata.org)

**ICAO** – International Civil Aviation Organization

A United Nations agency that develops internationally binding norms for civil aviation. [www.icao.int](http://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](http://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.

### **IPCC** – Intergovernmental Panel on Climate Change

An international UN panel of experts on climate change, founded in 1988 by the World Meteorological Organization (WMO) and the United Nations Environmental Program (UNEP). The latest worldwide scientific, technical and socio-economic information relevant for climate change is analyzed and processed to advance the understanding of climate change.

[www.ipcc.ch](http://www.ipcc.ch)

### **ISO 14001** – International environmental management system

Companies hereby 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](http://www.iso.org)

### **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.

### **Lufthansa School of Business (LHSB)**

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.

### **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

### **MSC standard** – Marine Stewardship Council

Leading worldwide certification program for fish and seafood from sustainable fishing.

### **MTOW**

Acronym standing for maximum takeoff weight of an aircraft

### **Nitrogen oxides (NO<sub>x</sub>)**

Chemical compounds consisting of one nitrogen and several oxygen atoms. NO<sub>x</sub> is defined as the sum of NO and NO<sub>2</sub> 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<sub>x</sub> emissions by 85 percent. Depending on the type of aircraft and operational conditions, this value varies between 6 and 20 kilos per tonne of fuel burned. Air traffic has a share of 2-3 percent in man-made NO<sub>x</sub> emissions. Climate models show that nitrogen oxides have increased the concentration of ozone at cruising altitudes by a few percentage points.

### **NO<sub>x</sub> see “Nitrogen oxides”**

### **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 consisting of three oxygen atoms formed in the stratosphere. 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 percent on the heavily-flown North Atlantic routes.





### **Pro Recycling Paper Initiative**

Founded in 2000, the initiative unites various industries and aims at promoting an intensive usage and the acceptance of recycling paper. Lufthansa is one of the initiative's founding members.

[www.papiernetz.de](http://www.papiernetz.de)

### **Passenger kilometers (PKO/PKT)**

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

### **QC – Quota Count system**

The Quota Count system is used to steer and reduce nighttime noise emissions from aircraft at London's airports. Since 1993, the system has been based on the certified noise record data of individual aircraft types. The quieter an aircraft, the lower is its QC value.

### **Raked wingtips**

Raked wingtips are specially back-swept, elongated wingtips, which improve an aircraft's lift and its air resistance in flight – and thus fuel consumption as well.

### **RSB – Roundtable for Sustainable Biofuels**

International initiative to develop a global standardization and certification system for agrofuels.

### **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 utilization of aircraft: 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 undertaken since the late 1990s with the goal of restructuring the European airspace in terms of optimizing traffic flows and dissolving the airspace's fragmented structure, defined by national borders and interests, by creating a limited number of Functional Airspace Blocks (FABs).

### **SESAR – SES Air Traffic Management Research**

This project is carried out by Eurocontrol within the EU project SES with the project partners and in close coordination with the ICAO.

### **SJU – SESAR Joint Undertaking**

A publicly and privately funded EU project involving Eurocontrol and industrial partners (e.g. Airbus).

### **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.

### **Tonne kilometer (TKO/TKT)**

Measure of transport performance (payload multiplied by distance). One distinguishes 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.

### **Trace gases**

Gases of which there are only very small amounts present in the atmosphere (e.g. ozone, methane, nitrous oxide, etc.) but which are of great significance for the Earth's climate and the chemical processes in the atmosphere.

### **Transparency International**

Anti-corruption organization, of which Lufthansa has been a member since 1999. [www.transparency.de](http://www.transparency.de)

### **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.

**UNEP** – The United Nations Environmental Program [www.unep.org](http://www.unep.org)

#### **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](http://www.unglobalcompact.org)

#### **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.

#### **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 kilo of kerosene burned, 1.24 kilos 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.

#### **Wet lease**

Leasing of aircraft including complete crew, maintenance and insurance.

#### **Work-life balance**

Refers to a healthy equilibrium between work and private life.

#### **WRI** – World Resources Institute

Founded in 1982 as a nonprofit organization. This independent environmental think tank has its headquarters in Washington D.C., and is concerned with subjects related to global warming, diverse ecosystems, government systems and structures, renewable energies and the use of resources. The WRI's work goes beyond scientific research and aims at finding pragmatic solutions to protect the environment, advance sustainable development and improve people's general life situation.

[www.wri.org](http://www.wri.org)

## Contact partners

You can find contact partners in the area of Corporate responsibility under the heading "Service" at [www.lufthansa.com/responsibility](http://www.lufthansa.com/responsibility)

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





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