



# Sustainability of Safety Management

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# Agenda

- Lufthansa Technik Group
- Safety Management System at LHT
- SMS-Tools: Q-Star
- SMS-Tools: Quality System Report
- SMS-Tools: q/scan
- SMS-Tools: LEARN magazine

# Lufthansa Technik Group

## Facts & figures



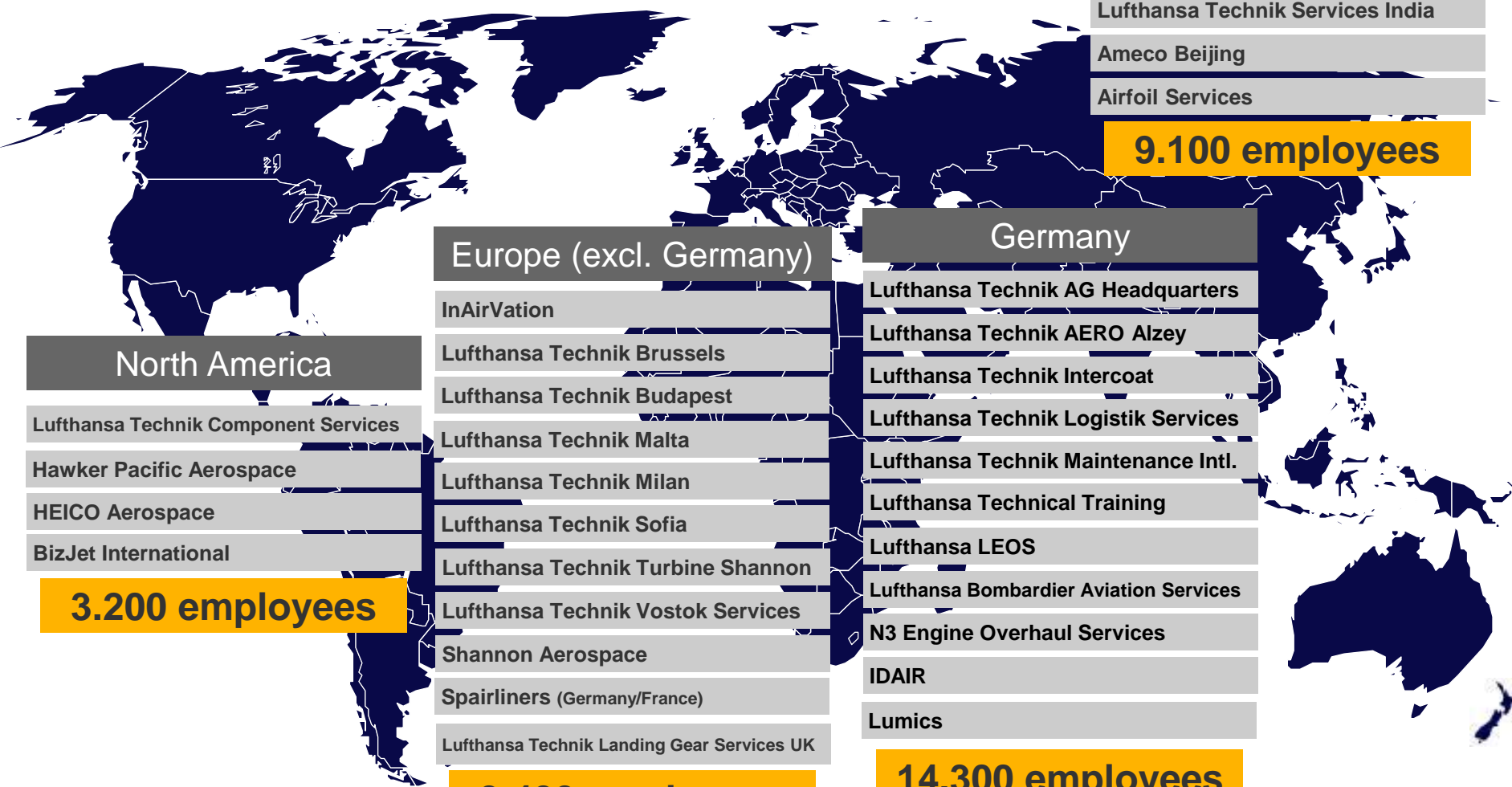
- 770 customers worldwide
- 2.820 aircraft under exclusive contracts
- 1.700 aircraft inspections per day\*
- 30 subsidiaries and affiliates worldwide
- 4,18 billion Euros in revenue\*\*
- 19.917 employees worldwide\*\*

\*includes subsidiaries and services by LCY in CGN and MUC

\*\*Lufthansa Technik AG Germany and 22 consolidated companies of Lufthansa Technik Group in 2013; employees as of 31.12.2013

# Lufthansa Technik Group

## Employees worldwide



### North America

- Lufthansa Technik Component Services
- Hawker Pacific Aerospace
- HEICO Aerospace
- BizJet International

**3.200 employees**

### Europe (excl. Germany)

- InAirVation
- Lufthansa Technik Brussels
- Lufthansa Technik Budapest
- Lufthansa Technik Malta
- Lufthansa Technik Milan
- Lufthansa Technik Sofia
- Lufthansa Technik Turbine Shannon
- Lufthansa Technik Vostok Services
- Shannon Aerospace
- Spairliners (Germany/France)
- Lufthansa Technik Landing Gear Services UK

**3.400 employees**

### Germany

- Lufthansa Technik AG Headquarters
- Lufthansa Technik AERO Alzey
- Lufthansa Technik Intercoat
- Lufthansa Technik Logistik Services
- Lufthansa Technik Maintenance Intl.
- Lufthansa Technical Training
- Lufthansa LEOS
- Lufthansa Bombardier Aviation Services
- N3 Engine Overhaul Services
- IDAIR
- Lumics

**14.300 employees**

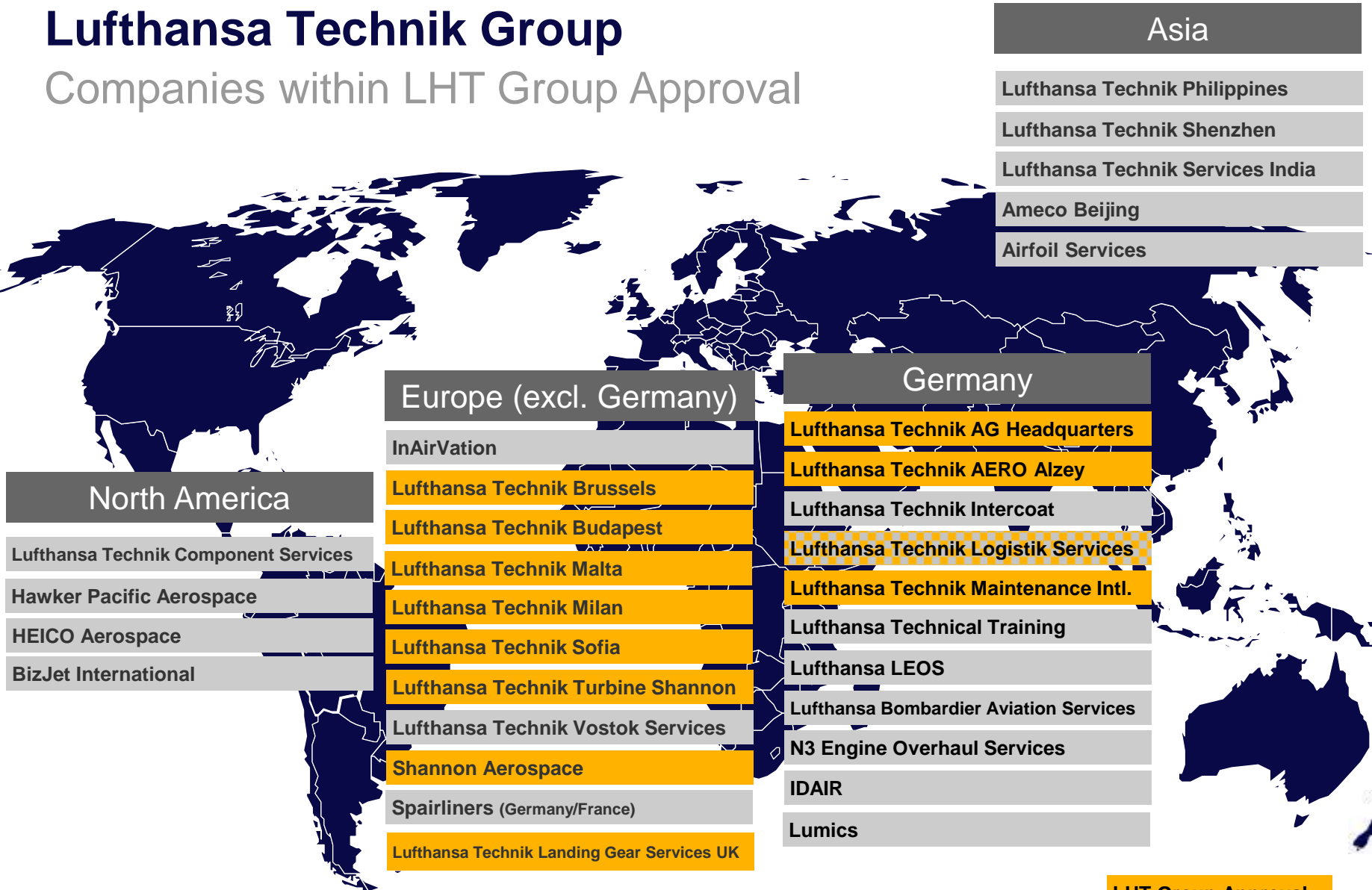
### Asia

- Lufthansa Technik Philippines
- Lufthansa Technik Shenzhen
- Lufthansa Technik Services India
- Ameco Beijing
- Airfoil Services

**9.100 employees**

# Lufthansa Technik Group

## Companies within LHT Group Approval



LHT Group Approval  
Company DE.145.0001

# Integrated Quality Management

Comprehensive certification to fulfill highest standards

## Integrated

Aviation law plus international standards

## Global

Established in LHT Group\* until 2015

## Certified

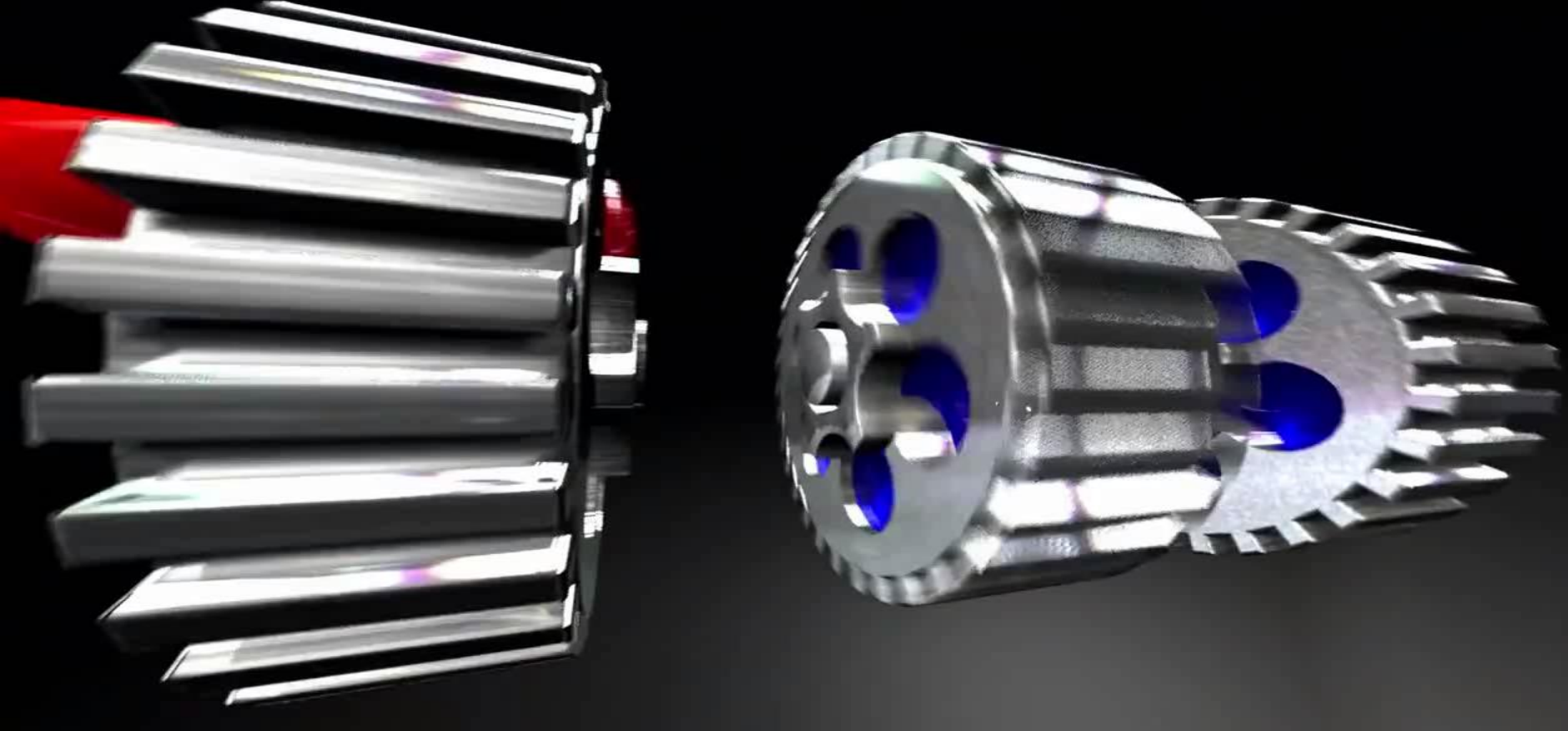
External surveillance of system



Approved Quality for our customers



\* Majority owned subsidiaries



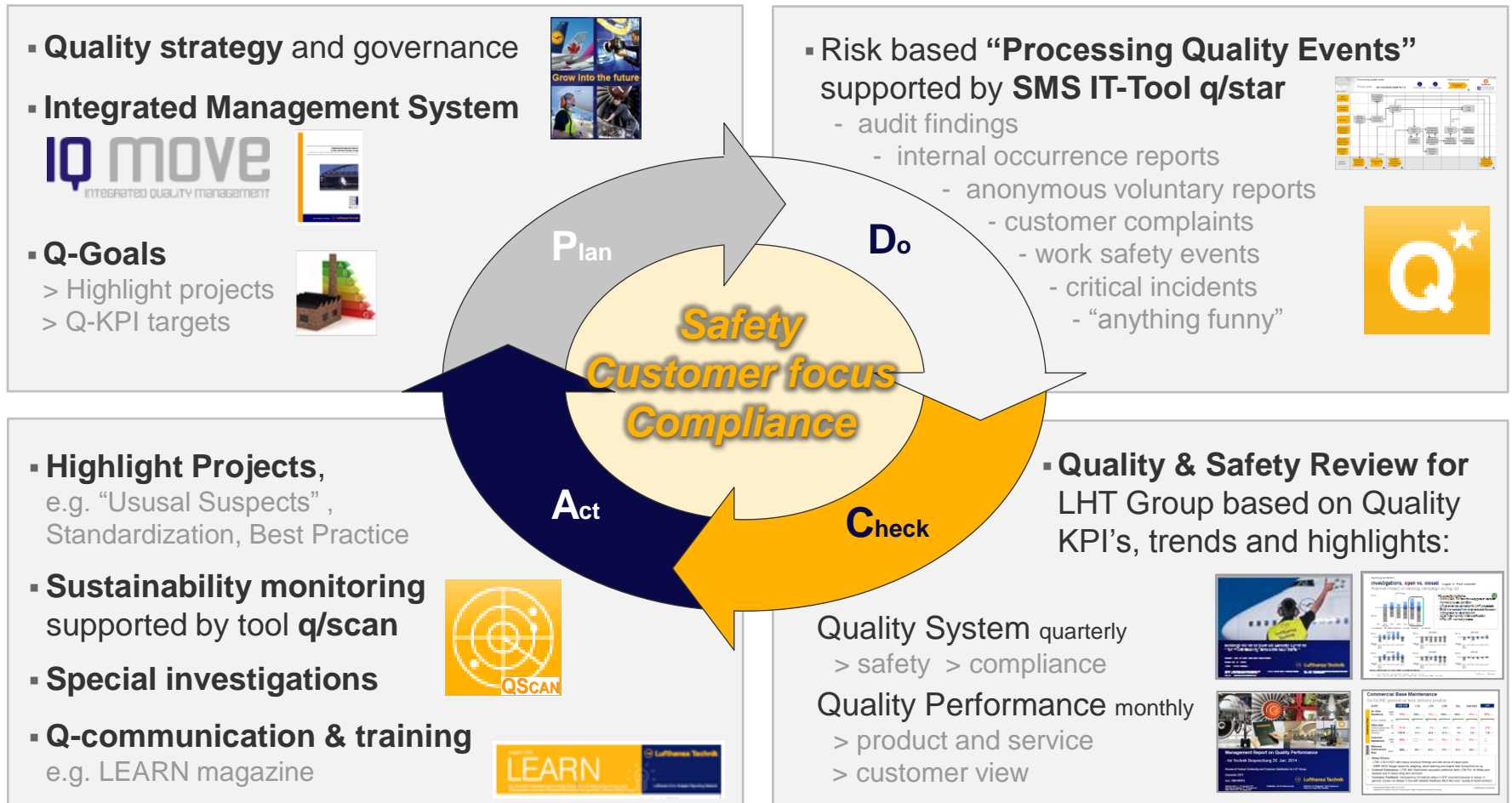
Source: Australian Government | Civil Aviation Safety Authority

**We keep the gear adjusted !**



# Safety Management System Circle

Guarantee for sustainability and success





# Diagnosing the quality event

## Finding solutions with MEDA



### Corporate Learning



➔ Thus the investigator treats these persons as partners instead of punishing them

➔ Instead persons who caused events are the key for finding a solution

➔ No employee wants to harm the company

### Gathering information

**MEDA**

Maintenance Error Decision Aid (MEDA) is a structured process to investigate events caused by maintenance technicians and/or inspector performance. It was developed by Boeing and is a widely respected standard in aviation.

# Looking for patterns in the events with q/star

Four tools to identify systematic risks

*With q/star events are analysed and documented according to **common standards**. They enable us to identify systematic risks*



**Error  
Categories**

*Making events comparable with  
standardized categories*

**Cause  
Categories**

**CNQ**

*Identifying financial costs and  
liabilities*

**Risk  
assessment**

*Identifying **critical topics** which  
have to be processed with  
higher priority*

# Advantages for Management

Solutions and implementations gives the orientation

The q/star process have many advantages for management



## Focus on decision and implementation:

The Investigator analyzes as Action Owner quality / safety problems and recommends solutions. This enables you to focus on **decision and implementation**.



## Higher efficiency:

With q/star we process quality problems according to their severity- severe problems with high intensity and smaller issues pragmatically.



## Overview:

You keep clear sight over quality / safety problems in your department enabling you to take actively actions.

# Quality System Report - concept

Highlight review + Q-KPI trends = reactive + preventive

## Highlight Events

Risk based identification of highlight events. Detailed analysis and action plan.

- repeat cases
- FMEA based risk evaluation
- integrated QEHS + cost

### Incident: flashovers from GPU-plug

Handling and periodical checks not appropriate



**Description**

- Flashover when switching on stationary 115 V / 400 Hz
- 3 occurrences in HAM within 6 weeks, 1 in FRA
- Nobody injured, no plane damage

**Causes**

- Material strain due to
  - snapped strain relief
  - unsupportive storage on the floor
  - periodical checks insufficient

Customer	AC-req / FME-Engine	PD	Staircase	Risk driver
LHT	standard	WA	OC	
Repair item (TEW)	CRD	Date of event	Invest. date	Invest. type
ND	standard	2012/09/14	04/01	Case closed

Source: TSB \*\*AA=Authority Airbus, GA=Customer Airbus, CC=Customer Complaint, IA=Internal Audit, OC=Internal Occurrence, SQ=Quality Investigation

## Quality KPI trends

Statistical analysis: trends, target achievement, cluster analysis to improve prevention

### Investigations, open vs. closed assigned to "Event responsible"

Positive impact of backlog campaign during Q3



### Open Actions – age cluster per 30th Sept

Monitoring of long runners needed – targets 2014 agreed



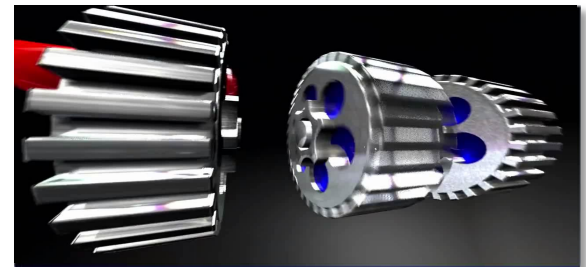
### Investigations results from cause analysis

Cause analysis confirms known fields of action from highlights



## Background Information

Process indicators for specific performance targets, e.g. duration of investigation etc.




### Quality System Review

LHT Group Approval Companies  
Quarter 3, 2013



# q/scan

## systematic spot checks to ensure sustainability

**QSCAN** 

Quality Sampling-FRA WB66

Product: On-Site-Sample (PD Maintenance) Findings Yes  No

Date performed	A/C Registration	Reference No.	Customer
		198769	

**Module: Work Safety (LHT-Standard)**

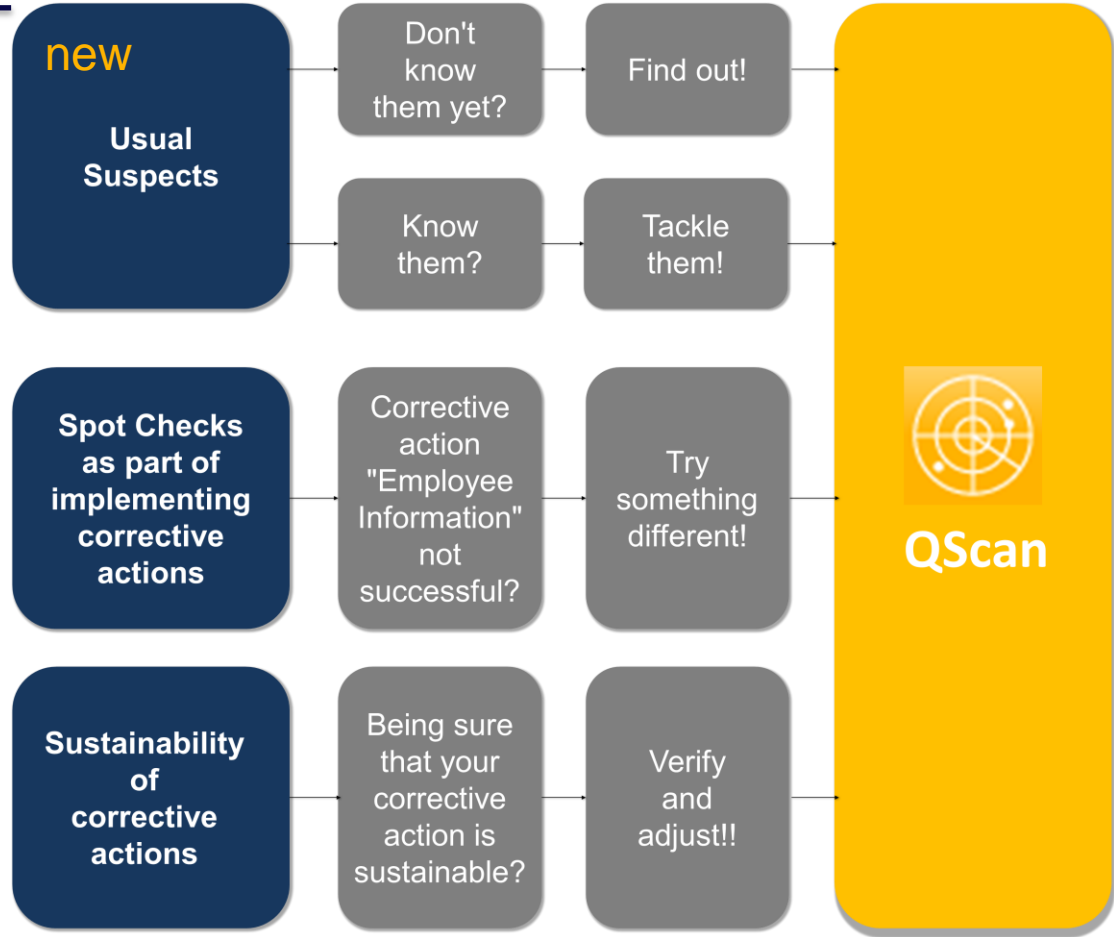
Finding (F)	N/A	Equipment
1		Protection equipment is not available or not being used (e.g. ear protection, eye protection, safety harness, barriers)
2		Equipment for access to work area is not being used properly or in unsafe condition (e.g. ladders, platforms, etc.)
Finding (F)	N/A	Hazardous Materials / Chemicals
3		Materials / Chemical containers are not closed or damaged
4		Contamination of work area with chemicals / fluids

**Module: Storage Conditions (LHT Standard)**

Finding (F)	N/A	Shelf Life / Expiry Date
5		Missing / unreadable expiry date label on consumables / materials which are obviously shelf life limited
6		Expired consumables / materials found (e.g. sealer, tape, seals, adhesives, rubber materials)
7		Shelf life information has not been transferred from the original container to another container in case of repackaging or refilling (except "poison cup")
8		Required information on "poison cup" is incomplete or missing
Finding (F)	N/A	Storage Conditions
9		Parts / Materials without proper protection against damage and contamination (e.g. missing or wrong packaging, connector caps, ESD protection)
10		Parts / Materials are not stored in accordance to environmental requirements (temperature, humidity) in production areas
11		Parts / Materials are not stored at the defined location (e.g. flammable cabinet, ramp car)
12		Parts / Materials are insecurely placed (e.g. possible drop-off)

**Module: Material Segregation (LHT-Standard)**

Finding (F)	N/A	Tagging / Labelling
13		Parts / materials can not be clearly identified (e.g. tags, labels, attached documents)
14		Identification-Tag / Label / Document not filled completely and correctly
15		Identification tag / label / document not readable
16		Status of parts / materials is not clear (serviceable / unserviceable / scrap / pending further work)
Finding (F)	N/A	Segregation
17		Serviceable and unserviceable parts / materials are not stored separately and / or correctly
18		Parts belonging to different projects / tail signs are not stored on correct place
19		Racks / shelves are not clearly identified (e.g. serviceable / unserviceable / temporarily removed / project)



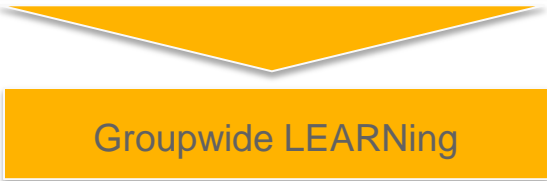
# LEARN magazine

Open communication of errors & learnings to support Just Culture



## Concept

- Open publication of errors ... and best practice
- Non punitive (!)
- One pager per event, appealing to read
- Error – chain of events – Learnings
- Source: q/star reporting and anonymous hints
- Quarterly print and digital publication for LHT group 15.000 prints



**Vielen Dank für Ihre Aufmerksamkeit.  
Thank you for your attention.**

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