Engine Services

In the best hands
Supporting GEnx-2B engines

Annual Report
“We shape the market”
Dr. Johannes Bussmann about fiscal 2018

Digital Fleet Solutions
“Own your data”
AVIATION DataHub launched

Aircraft Services
Power boost during flight
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Lufthansa Technik has already gained extensive operational experience with the GEnx-2B and built up service capabilities for this engine type.

“We shape the market”
At the annual press conference, CEO Dr. Johannes Bussmann spoke about the past fiscal year and the current situation of the company.

In the best hands
Lufthansa Technik has already gained extensive operational experience with the GEnx-2B and built up service capabilities for this engine type.

“Own your data, control your data”
The interview gives insights into the concept of AVIATION DataHub, the new independent aviation data platform initiated by Lufthansa Technik.

Cozy kitchen
HeatNOW provides crew members with warm feet in the door and galley areas of an aircraft cabin.

“Own your data, control your data”
The interview gives insights into the concept of AVIATION DataHub, the new independent aviation data platform initiated by Lufthansa Technik.
The new VIP cabin combines the cultures of East and West, exploring the harmonious beauty in the symbiosis of nature, technology and human demands and offering a brand new business jet traveling experience for customers.

The unique new VIP cabin features a live-cooking aircraft galley, a guest area, a lounge, a dining/meeting area, a cinema and a master bedroom. Taking full consideration of both customer needs and space efficiency, a convertible sofa, a coffee table in the multi-functional lounge, and a bar with transformable dividers are there to ensure flexible usage. The dining/meeting area offers several modes, such as business, entertainment and leisure. Many traditional Chinese colors have been used, including creamy, moon-light beige combined with bamboo green, jade and crimson. Textile and subtle stripes simulating bamboo wood grain are complemented by natural materials such as marble, genuine leather, wool and silk. The exuberant diversification of colors and textures expresses the vitality of nature. Bamboo, which stands tall and straight, unyielding and never withering, has been a symbol of character, moral integrity, resistance, modesty and loyalty since ancient times. The designers extracted the elements of bamboo knuckles, leaves and woven artefacts, and used them geometrically to embody the Eastern culture while achieving modern beauty in the business jet cabin.

Human-oriented smart technology

In order to create a convenient and comfortable flight experience, all interfaces are integrated into the cabin environment in a gentle way, including hidden passenger system control units (PCU), intelligent cabin signs, smart touchscreen desktops, smart window shade glass and ambient lights. An absolute technical innovation is the installation of the roll-up/down screen technology in the cinema. A voice and gesture recognition simplifies the handling of the cabin management (CMS) and inflight entertainment systems (IFE). The cabin’s ambience is enhanced by creating matching moods and surroundings, depending on the passengers’ requirements. For a business scenario, the displays could show live data from global business networks via cloud services. Wireless charging on many horizontal surfaces is available for personal devices, and video conferencing and full connectivity are provided by a high-speed internet connection. Cabin lights and surroundings produce a business-like ambience. The integrated bar rounds out the meeting area in the cabin.

In a selected leisure and entertainment scenario, the cabin displays show data from music and entertainment servers and visualize the music mood. Projections on walls and ceiling enhance the feeling of well-being and relaxation. The bar area is now open, the open roller shutters and the consistent lighting concept connect the lounge with the dining area for the passengers. A cinema room finishes the entertainment package with today’s largest screen (75") in a narrowbody aircraft, including ambient lights and an all-new louvered ceiling concept.

At ABACE 2019, Ameco Beijing and Lufthansa Technik presented a jointly developed narrowbody aircraft cabin for the first time. “Nature’s Touch” is based on the cabin concept of an Airbus ACJ320 business jet, but the design is intended to be adaptable to a Boeing 737 BBJ configuration as well.
Get to know us in a new way

Internet // Completely restructured, with convenient and quick access to all information, more integrated social media functions and easy ways to find your personal contacts – these are just a few of the features of Lufthansa Technik’s new website. Users can browse through the site to explore our products and services, get to know our people and catch a glimpse behind the scenes.

At the heart of our new website is the Capability Finder. By simply entering any desired search words – from products, aircraft and engine types to part numbers – everything can be found in the clearly presented results. The search can also be refined by regions or Lufthansa Technik facilities.

Maintenance concept optimized

Maintwise // U.S. American carrier JetBlue Airways is one of the first customers of Lufthansa Technik’s new engineering consulting service Maintwise. In only two months, Lufthansa Technik has developed a maintenance concept tailored to the individual requirements for the customer’s entire Airbus A320 fleet, consisting of about 130 aircraft.

The aim of Maintwise is to bundle optimally all aspects of an aircraft maintenance program, taking into account available ground times, customer targets and framework conditions. In cooperation with the customer’s planning and engineering experts, the engineers at Lufthansa Technik devise a maintenance concept that optimally harmonizes the flight plan with the maintenance program.

Depending on the customer’s objectives, higher aircraft availability or lower maintenance costs are the main targets. Other objectives may include improved planning stability or increased flexibility for aircraft operations.

New contracts with drone manufacturers

SafeDrone // SafeDrone by Lufthansa Technik has signed comprehensive contracts with drone manufacturers Matternet and SwissDrones. Both companies will use SafeDrone Health, a holistic and manufacturer-independent diagnostic solution especially for flight-critical drone components, to improve the efficiency of their maintenance programs.

For U.S. drone manufacturer Matternet, SafeDrone Health is an important part of its safety-first philosophy. It will support flight operations in Switzerland as well as those conducted under the Unmanned Aircraft System Integration Pilot Program initiated by the Federal Aviation Administration (FAA). Swiss drone manufacturer SwissDrones aims to become the global market leader for multi-purpose, long-endurance heavy-lift civil drones. The deployment of a professional fleet health and safety management platform has become a key initiative for the company.

“We are proud to be working with two strong and innovative companies and support them on their growth path by helping increase the efficiency of maintenance efforts while keeping operational reliability and safety at a consistently high level,” commented Philipp Baumgarten, technical project lead for SafeDrone.

Global 7500 line maintenance approval

LBAS // Whilst Bombardier is delivering its newest and largest aircraft type to the first customers, Lufthansa Bombardier Aviation Services (LBAS) is now ready to offer services for Bombardier’s largest and longest-range business jet. The European Aviation Safety Agency (EASA) granted Lufthansa Bombardier Aviation Services the approval to perform line maintenance services at its home base in Berlin Schoenefeld. Moreover, LBAS can offer AOG services at any location worldwide for the Global 7500 business jet.

“In the near future we will be able to offer the complete range of line and base maintenance services for this aircraft type. Our hangar in Berlin Schoenefeld has already four maintenance bays capable of receiving the Global 7500 business jet. Furthermore, our NDT, batteries and wheels shops are equipped to handle the extra requests,” said Sascha Leitner, CEO of Lufthansa Bombardier Aviation Services. The company is a leading full-service MRO provider in Europe, Russia, the Middle East and Africa. With 250 highly qualified personnel, Lufthansa Bombardier Aviation Services provides optimal support for operators of Bombardier Global, Challenger and Learjet business aircraft.

Stay up to date!

Customer Newsletter // Lufthansa Technik’s online customer newsletter Connection Flash supplements our popular bi-monthly Lufthansa Technik Group Magazine Connection with first-hand news on innovative technologies and developments, new services and offers, and future events.

www.lufthansa-technik.com/newsletter
Gaining momentum in North America

Mobile Engine Services // With the inauguration of a larger repair station in Montréal and the introduction of a new engine type to be serviced at the Tulsa facility, Lufthansa Technik’s Mobile Engine Services is gaining strong momentum in North America. Aiming to avoid or postpone major overhaul events, Mobile Engine Services consists of a number of smart engine repair solutions which also include Lufthansa Technik’s Cyclean® engine wash system. The new Mobile Engine Services repair station in Montréal is currently moving from inside Air Canada’s facilities to new and independent premises. With more than 2,500 square meters (27,000 square feet) of floor space and twelve bays, the new building will triple the site’s operational capacity for surgical repair solutions on CFM56 engines. To support the capacity increase, Lufthansa Technik plans to expand its workforce in Montréal from today’s 30 to 80 by the end of 2021. Since January, the Mobile Engine Services site in Tulsa, Oklahoma, has its remodeled hangar in operation, expanding the capacity for work on V2500 engines from four bays to six, plus a fully operational test cell (see page 16).

Composites support for Aeroflot

ARC® // Aeroflot – Russian Airlines has entrusted Lufthansa Technik with Airframe Related Components (ARC®) services for its A320 family aircraft. The comprehensive supply, pooling and maintenance agreement with the carrier covers the whole fleet of this type operated by Aeroflot. The services comprise maintenance, repair and overhaul events for all ARC® parts of Aeroflot’s Airbus A320 family aircraft, including modification services. Lufthansa Technik also provides pooling services for specific components such as thrust reversers, inlet cowls and fan cowls. In addition, an exclusive home base stock for Aeroflot has been set up at Sheremetyevo Airport in Moscow. The provision of services already started in December 2018. For the first time, A-Technics, the MRO provider of Aeroflot Group in Moscow, is defined as the dedicated subcontractor for all ARC® MRO activities within their capability. The long-standing cooperation with Aeroflot – Russian Airlines and Lufthansa Technik has been developing over more than 25 years.

Component support for Ural Airlines

TCS® // Ural Airlines has contracted Lufthansa Technik to provide component support for its new Boeing 737 MAX aircraft and extended the existing agreement to support the addition of Airbus A320neo aircraft to its fleet. Component maintenance, repair and overhaul is performed under the terms of a Total Component Support (TCS®) agreement and complemented by pooling services. The phase-in of the five new Airbus and 14 Boeing medium-haul aircraft is scheduled to begin this year. For optimum supply, the home base of the Russian carrier in Ekaterinburg will be appropriately enlarged with components for the new aircraft types. Component repairs will be performed within the Lufthansa Technik network, mainly at the Hamburg facility. Lufthansa Technik has developed close partnerships with carriers in Russia and the CIS region. The support for Ural Airlines dates back to 2006 when the carrier added the first Airbus A320 to its fleet.

Component services for AirBridgeCargo

TCS® // AirBridgeCargo Airlines has assigned Lufthansa Technik with component services for its Boeing 747-400F freighter fleet. According to the long-term Total Component Support (TCS®) agreement, Lufthansa Technik will support the Russian cargo airline with component pooling and leasing services. The contract covers the Boeing 747-400F fleet of AirBridgeCargo, currently consisting of six aircraft. Lufthansa Technik will perform comprehensive component services covering a list of approximately 1,400 parts, including leasing services for home base components. Lufthansa Technik already supplies a range of overhaul, maintenance and engineering services to the Boeing 747 freighter fleet of AirBridgeCargo Airlines.

Since January, the Mobile Engine Services site in Tulsa, Oklahoma, has its remodeled hangar in operation, expanding the capacity for work on V2500 engines from four bays to six, plus a fully operational test cell (see page 16).
Apart from the financial result, is there anything that stands out in particular for Lufthansa Technik in connection with the past year?

Dr. Johannes Bussmann: For the first time in our history, we have more than 5,000 aircraft under contract: The exact number at the end of the fiscal year was 5,131. That means that every fifth commercially operated aircraft that takes off or lands worldwide is serviced by Lufthansa Technik in one form or another. The figure speaks for itself and shows that our customers’ trust in us is constantly growing. For me, that says more about our success than any other economic indicator. Another highlight is that we have finally positioned ourselves in the digital world with our AVIATAR platform.

You’re referring to Lufthansa Technik’s positioning in the digitalization of the industry. What does that mean in concrete terms?

The subject of digitalization is and remains the greatest challenge facing our industry. Over the past year, we have been able to significantly influence developments in the MRO market in this respect. Our platform AVIATAR has become established on the market as an independent and integrated source for digital offers. Many partners and customers from major airline groups are already working with the platform and benefiting from optimized aircraft availability, lower follow-up costs and more reliable fleet operations. We have also realized that we need to go one step further in order to ensure that aircraft operators can decide whether and with whom they want to share their data regarding the technical support of their aircraft. That’s why we founded AVIATION DataHub (editorial remark: see page 14) – another milestone in our digitalization strategy. In our 25th year as an independent company, we still have the strength to shape the market. And we’ll go on doing that even more so in the future.

Perhaps you could nevertheless say a few words about the economic indicators.

We are still on a very stable growth course and were able to generate revenues of 5.9 billion euros in 2018 despite the highly competitive environment. That represents growth of 9.5 percent over 2017. Our earnings before interest and taxes – or adjusted EBIT – increased slightly from 415 million to 425 million euros, which is a notable achievement given a number of opposing effects and a substantial increase in capital expenditures. At year-end, Lufthansa Technik employed more than 23,000 people worldwide. We were very successful again in sales, too: With 576 new contracts in 2018, we were able to add a new order volume of 5 billion euros to our books for the coming years. And we are particularly pleased that we were able to win 29 new customers.

Can you give some examples of these new contracts?

Among the highlights are several contracts signed with Asian customers such as Air China and Japan Airlines, which further strengthened our leading position in the area of A350 component supply in 2018. In addition, we were able to secure important orders for A350 APU support from Asiana and Vietnam Airlines. In the Americas, we concluded a comprehensive material supply contract with the Canadian airline WestJet for its future Boeing 787 fleet.
With 576 new contracts in 2018, we were able to add a new order volume of 5 billion euros to our books for the coming years. And we are particularly pleased that we were able to win 29 new customers.

Dr. Johannes Bussmann
In the EMEA region, we signed an early five-year extension of our engine contract with the Norwegian Air Shuttle Group for the complete care of the CFM56-7B engines in its 737-800 fleet. A special highlight in the African market was the conclusion of a contract with South Africa’s Comair Limited. Here, we will provide technical support for the Boeing 737 fleet and hire up to 150 employees at various maintenance stations in South Africa for this purpose. All these examples show that we have been able to establish ourselves very well with respect to the latest aircraft generations, their engines and systems – and not just as a service provider to the airlines, but also as a partner of the leading manufacturers.

How is Lufthansa Technik developing in the regions?

Internationalization is one of our most important strategic goals. That’s why I am very pleased that we have grown significantly in all three of our world regions. The Americas region achieved the strongest revenue growth in 2018, with revenues rising to over one billion euros for the first time. In the EMEA region, we recorded revenue growth of just under nine percent to more than four billion euros. Accounting for two-thirds of our total revenue, the region remains Lufthansa Technik’s strongest market by far and thus the economic backbone of our company. Even in the Asia Pacific region, with its particularly competitive market, we managed to increase our revenues by 3.4 percent to over 610 million euros. The volume of business in the global MRO market is rising, albeit with varying dynamics in the individual regions. Hardly any other industry offers such opportunities, and we obviously want to continue to profit from this.

What measures are you taking to benefit from this market growth?

If we want to take advantage of the opportunities offered by the growing markets, we naturally have to invest – and we’re doing that on an ongoing basis. At 241 million euros, our investments last year were more than three percent up on the previous year. They included, for example, the procurement of spare engines, the establishment of the joint ventures XEOS (with GE Aviation) and EME Aero (with MTU), the expansion of our Mobile Engine Services network and the development of digital products. From 2022 on, our new hydraulic workshop in Hamburg will be one of the most modern repair shops for hydraulic components in the aviation industry. Such investments in capacity and technology are incredibly important, of course, but what really sets us apart from our competitors are our employees. The shortage of skilled workers is an international problem throughout the industry, which is why the recruitment and development of employees worldwide is a very decisive issue for us as well.

How is Lufthansa Technik expanding its footprint in the regions?

Last year was marked once again by the ongoing internationalization of the company. Examples include the two engine-related joint ventures in Poland and the joint venture with LG Electronics in South Korea for the collaborative development of innovative OLED displays for commercial aircraft cabins. But we are also continuing to expand our partnerships with leading manufacturers, such as with UTC Aerospace Systems for the maintenance of accessories for geared turbofan engines, and our membership in the MRO network for LEAP-1A engines. Together with a number of other well-known companies, we recently formed the Independent Aircraft Modifier Alliance (IAMA) to jointly develop standards for supplementary type certificates for aircraft modifications. There were also decisive developments within the Lufthansa Technik network in 2018: New technologies are being tested in the Innovation Bay at Lufthansa Technik Malta, Lufthansa Technik Shenzhen in China is being expanded further and Lufthansa Technik Puerto Rico obtained approval at the end of 2018 for maintenance work on the A320neo, to name just a few examples. Our global expansion continues rigorously, with numerous successful partnerships.
The first impression counts – true also for passengers boarding an aircraft. With SkySHINE, airlines can quickly and cost-effectively repair blemishes on cabin components and thus improve the overall flight experience of their passengers.

SkySHINE is a manufacturer-independent spray paint and can be applied on all components, no matter which supplier they come from. Choosing from a huge spectrum of 16 million colors, each airline will find the perfect match for its cabin interiors. With a water-based and odor-free paint, the repair process is also environmentally friendly. The spray is simply applied by airbrush. Extending the service life of aircraft cabin interiors, SkySHINE is a smart solution to obtain a flawless appearance and provide passengers the best first impression that is so important.

Benefits of SkySHINE

- Invisibly hides blemishes
- Short drying time
- Easy application as a spray by airbrush
- Fast and simple color matching
- Odor-free and water-based paint

SkySHINE by Luftansa Technik offers a pragmatic solution with small and medium repair technology. The damage can be repaired selectively while the damaged components remain installed in the cabin. This eliminates the need for costly dismantling of the components and allows the work to be performed during normal line maintenance ground time. Of course, this also results in fewer work hours and significantly lower material costs, while the inventory of expensive spare parts can be reduced.

Make your cabin shine again


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www.lufthansa-technik.com/new-products
Right from the entry into service of the Boeing 747-8, Lufthansa Technik was able to gain extensive operational experience both on the aircraft and on the engines. With the close connection to Lufthansa German Airlines – as launching customer operating 19 aircraft – Lufthansa Technik has built up the capability to offer **GEnx-2B engine services.**
Lufthansa Technik offers well-known engine service products which go far beyond the redelivery of a serviceable engine according to engine manual. “With more than 60 years of experience in engine overhaul at Lufthansa Technik, the overall goal is to optimize the operator’s total cost of ownership in alignment with its fleet operation,” says Dietmar Focke, Vice President Engine Services at Lufthansa Technik.

Lufthansa Airlines has had the Boeing 747-8 in operation since 2012, and since then Lufthansa Technik has also been licensed to service the new GE9X-2B engine. In 2015 Lufthansa Technik entered the OEM MRO Network by executing the top class “GBSA” (GE Branded Services Agreement) MRO license with GE. This provides the framework for a broader technical collaboration with the OEM.

Lufthansa Technik’s GE9X-2B services aim to support the operator by maximizing flexibility while ensuring fleet stability. The GE9X-2B services of Lufthansa Technik consist of:

- Smart workscoping based on past and future engine utilization to optimize shop visit costs and time on wing
- Customized material concepts including material exchanges and reducing shop visit costs by supplying new, used and repaired material
- Development of repairs, procedures or tooling by using Lufthansa Technik’s authorized design organization to full extent
- Proactive maintenance measures, derived from Engine Condition Monitoring which is continuously being improved by developing additional algorithms and alert triggers and corresponding corrective actions
- Extensive logistic services including engine changes around the world and AOG support
- On-wing solutions to extend the time on wing or reduce inspection efforts during line maintenance

“In cooperation with the customer, Lufthansa Technik takes care of the entire wing-to-wing cycle while meeting turn time targets and ensuring a reliable on-time performance,” says Christian Seifler, Senior Director New Engine Types at Lufthansa Technik.

**Engine reality**

The introduction of a new engine type is usually accompanied by a period of teething troubles, and the GE9X was no exception. Although line maintenance and engineering were able to solve a significant amount of problems during the early years of operation, the first engine shop visits soon became necessary. These
shop visits – so-called quick turns – were initially carried out to replace combustion chamber liners and high-pressure turbine blades, or upgrade the booster based on respective service bulletins (SB). The number of SBs and the introduction of a performance improvement program (PIP upgrade) increased the shop visit demand steadily. In order to cope with this increasing demand, Lufthansa Technik took action and continuously expanded their capability and the number of slots for the GEnx-2B.  

More than 120 GEnx-2B shop events

An increase of this magnitude of shop visits even before Lufthansa Technik’s new engine shop in Poland (XEOS) was up and running required extreme flexibility. In order to close the global capacity gap for GEnx-2B maintenance, Lufthansa Technik decided to temporarily increase the GEnx-2B shop capability and capacity in combination with a comprehensive training program for the future XEOS employees while the new XEOS shop was under construction. Opened in April 2019, the facility includes state-of-the-art technologies for all processes around engine overhaul like automated cleaning lines and paperless material tagging. The new shop is fully GEnx-2B capable – and the plan is to extend its capability to service GE9X engines in the future.  

Transferring experience and know-how from MRO services on other engine types as well as maintaining various collaboration programs with OEMs puts Lufthansa Technik in a unique position of gaining deep technical insights into the engine’s hardware and applying leading edge technologies. As an independent MRO provider with experience of more than 120 GEnx-2B shop events, Lufthansa Technik is able to provide outstanding engine services for GEnx-2B operators.  

With access to operational as well as to shop data, Lufthansa Technik derives customized solutions such as analytical applications focusing on dedicated engine issues occurring during operation. For Lufthansa German Airlines, unpredicted fuel filter clogging was a major operational issue. To avoid unexpected filter clogging, Lufthansa Technik developed a prediction system which is now part of the ECM and leads to timely filter exchanges in advance.  

Besides looking at the individual engines, Lufthansa Technik offers to support the operator with a fleet management service which includes removal planning. Independent of whether the customer or Lufthansa Technik provides the removal planning, the overall target is to align slot and removal planning to optimize wing-to-wing time. As a result of less queuing time and short turn times, the demand for spare engines is reduced.
At Lufthansa Technik, a GEnx-2B dedicated shop visit management team takes care of the entire process from shop induction to dispatch for each individual shop visit. The team manages all engineering tasks, logistics and spare part concepts focusing on optimal shop turn times and costs. This way shop turn times of less than 60 days were achieved. Therefore, Lufthansa Technik ensures that the customer will get the well-known Lufthansa Technik engine service standard.

“Everyone is very happy, excited and extremely motivated to take on this challenge after the first engine from our customer was inducted. The team has the right mixture of engineering, material management and contract management competence. Combined with the analytical tools and engine MRO expertise which has been well established over the years at Lufthansa Technik, we are able to deliver the best services to our customers,” says Piotr Gredczyszyn, Head of GEnx-2B Product Line at Lufthansa Technik.

With the first induction on 4 April 2019, the brand new engine shop started its operation – one of the most modern engine shops in the world. Thomas Boettger, Managing Director of Business at XEOS, added: “With this GEnx-2B from Lufthansa German Airlines, introduced by Lufthansa Technik, XEOS welcomes its first GEnx-2B engine. We are proud to provide modern technologies, world-class solutions as well as highest standards of quality and safety to our customers.”

**Global GEnx-2B support**

In addition to continuously improving shop visits, Lufthansa Technik is looking more closely at value-adding on-wing solutions to increase on-wing time, decrease inspection efforts or simply promote customers’ ability to use the hardware for its intended purpose – passenger or freight transportation. Beyond standard on-wing tasks such as Cyclean® Engine Wash, Lufthansa Technik has industrialized and is working on further smart solutions. After a challenging start to operations, Lufthansa Technik is thus in a position to support the GEnx-2B globally with a large portfolio of individual services to keep the aircraft in the air. Be it line maintenance, an AOG situation, an on-wing solution or a shop visit – GEnx engines are in the best hands at Lufthansa Technik.

**Meeting place Singapore**

Combining the pleasant with the useful, Lufthansa Technik sponsored a meeting of the Singapore Community of Regional Aviation Professionals Society (SCRAPS), and presented the company’s tailored range of solutions.

SCRAPS is a traditional event for the aviation community in Singapore, including international leasing companies and banks with their offices in Singapore and the Asia Pacific region respectively. To highlight the importance of this region for its own business development and to value the relationships with the local aviation community, Lufthansa Technik sponsored the first of this year’s SCRAPS events held at the end of February and which were organized by the Singapore based leasing company BOC Aviation.

**Valuable discussions**

As the event location of this get-together, Lufthansa Technik selected a special one: Paulaner Brauhaus Singapore, which is the local representative of the German brewery and where beer lovers can enjoy a range of world-renowned Paulaner beers from one of Germany’s leading breweries. The event was opened by Gerald Steinhoff, Vice President Corporate Sales Asia Pacific, who gave a brief welcoming speech followed by tapping a barrel of fresh beer. The overwhelming number of guests and valuable discussions made this event a real success.

By participating in SCRAPS, Lufthansa Technik also demonstrated that its portfolio of products and services caters not only to airline operators but also to leasing companies and banks in the Asia Pacific region and worldwide. The company offers these clients a tailored range of solutions throughout the life of their assets. Other participants in SCRAPS are industry professionals from MRO providers, airframers, OEMs and airlines. Many expressed interest in Lufthansa Technik products and services, including digital products such as AVIATAR.

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In our interview, they explain how AVIATION DataHub will stimulate competition among digital solutions in the aviation industry and why all market players will benefit from this.

What is the concept behind AVIATION DataHub and how is it set up?

Michael Britzke: AVIATION DataHub was established as an independent company and aims to become the data platform for the entire aviation industry. It enables customers to collect, compile and process data across all relevant dimensions of an airline’s business, including technical, ground and flight operations.

AVIATION DataHub offers a secure, highly efficient and neutral solution for data services. Our mission is to leverage synergies in the digitalization across the industry and ensure data protection and competition at the same time. In this way, AVIATION DataHub is a further milestone on the way to digitalizing the aviation industry.

Lufthansa Technik has been offering AVIATAR, an independent platform for digital products and services, for two years. Why did you decide to launch AVIATION DataHub now?

Jan Stoevesand: Data is an incredibly important issue from an operational and legal point of view. Ultimately, data forms the basis for all digital services relating to aircraft operations. It is our firm belief that all data that is owned by the operator should also remain under the control of the operator. With the establishment of AVIATION DataHub, this clear standpoint has now been followed by consistent action.

Throughout the development, progression and operation of AVIATAR, we realized that we, together with other stakeholders in the aviation industry, needed an instance that provides inclusive data services whilst enabling and maintaining full control over data for operators. The solution therefore had to be neutral and open to co-determination and participation. That’s why and how AVIATION DataHub has been established. Naturally, AVIATAR will consume all data via the AVIATION DataHub to clearly underline the separation of data acquisition and data usage. It should be joined by others before long.

Who can benefit from AVIATION DataHub?

Jan Stoevesand: AVIATION DataHub will benefit all market players and generally addresses airlines, software services vendors, MROs and OEMs. Customers
are able to process their data independently. In addition, they can link their digital solutions and access structured data with their permission, thereby enabling integrated offerings and solutions. Data providers and providers of digital solutions can also become involved in order to maintain a presence in the market and win customers for their applications. AVIATION DataHub forms an integral part of ensuring airline independence and aftermarket competition in accordance with our “control, choice and competition” credo.

What will happen next and what is Lufthansa Technik’s ambition as a shareholder and customer?

Michael Britzke: Currently, Lufthansa Technik holds a 100 percent stake in AVIATION DataHub. We will reduce our stake significantly in the next few months, when we add other shareholders and strategic partners from the aviation industry. In particular, AVIATION DataHub remains open for participation by airlines. In line with our goal of preserving the airlines’ independence and encouraging competition at all levels, AVIATION DataHub contributes to greater efficiency in data services as the basis for comprehensive applications and associated products, services and solutions. We believe that only fair and intense competition can produce the best analytics and fulfillment solutions. This will make the aviation industry more dependable, efficient and environmentally conscious. Competition drives innovation and the search for the best solutions.

How has the new data platform been received so far?

Jan Stoevesand: There is a great deal of interest in AVIATION DataHub. Even before the official launch, we contacted a number of potential shareholders and strategic partners, and the discussions are progressing well. After the announcement, interest in the platform increased again. I’m sure that we will soon be able to actively implement one of our most important principles – the participation model – while AVIATION DataHub goes into the operational phase.

AVIATION DataHub

AVIATION DataHub is an independent platform for all data generated by aviation. Airlines, manufacturers and the MRO industry as well as data providers and other market players will be able to collect, compile and process important data from technical operations (“tech ops”), ground operations (“ground ops”) and flight operations (“flight ops”). AVIATION DataHub ensures data security, quality and integrity while giving owners efficient control of their data. In particular, the platform enables airlines to decide whether and with whom they want to share their data for the technical support of aircraft or the improvement of ground handling and flight operations.

AVIATAR

AVIATAR is an independent platform for digital products, services and solutions, such as predictive maintenance, with technical implementation included. Lufthansa Technik offers AVIATAR to operators and enables optimized operating times, reduced maintenance costs and more reliable fleet operations. AVIATAR combines airlines operation expertise, data science and engineering knowledge to provide an extensive range of integrated digital services and products for airlines, MRO companies, OEMs and lessors that seamlessly interface and link with physical fulfillment. AVIATAR is already used by major companies operating a four-digit number of aircraft.
Tulsa engine shop gears up

Tulsa, Oklahoma, has developed into the Lufthansa Technik shop in North America with a clear focus on engine services – and an equally clear trend toward expanding **Mobile Engine Services** for the American market.

In parallel with the systematic realignment and concentration on engine services, Lufthansa Technik’s Tulsa facility also expanded its product portfolio. New engine types have been added. For example, the company acts as a dedicated repair station for both the IAE V2500 engine and the PW1100 and PW1500 geared turbofans.

In 2019, Lufthansa Technik refurbished a hangar to accommodate its core product, Mobile Engine Services, at its facility in the heart of the USA. Aiming to avoid or postpone major overhaul events, Lufthansa Technik’s Mobile Engine Services consist of a number of smart engine repair solutions. They range from on-wing and on-site services performed by Airline Support Teams (AST®) directly at the customer’s location to smart, surgical repair solutions carried out in a global network of repair stations (see example on page 18). The Lufthansa Technik Group currently has four such repair stations around the world. In addition to Tulsa and Montréal, they are located in Frankfurt, Germany, and Shenzhen, China.

The realignment in Tulsa means that the facility is on course for growth: While it had four engine bays for V2500 engines and the first services for GTF engines in 2018, up to nine bays will be available by the end of 2019. And by the end of the expansion phase, there may be as many as 28 bays. Simultaneously, preparations are underway to add the CFM56-5B engine, for
which Mobile Engine Services will be offered from mid-2019. The necessary upgrades to the engine test bench should be completed in the fourth quarter of this year.

**New facility for Mobile Engine Services**

The prerequisite for this expansion in services is an appropriately qualified team of employees. Clemens Geercken, Lufthansa Technik’s Head of Sales Engine Services – The Americas, explains: “We have developed a special training program to keep the quality of our training at the highest level. In 2018, as one of the first companies in Oklahoma, we launched a training program in cooperation with the state that continually brings forth new mechanics with appropriate basic knowledge in form of an airframe and powerplant license. A subsequent internal training program, which, depending on prior knowledge, can take a further five months to complete, secures us on our ambitious growth path.” The figures speak for themselves: In 2017, the company employed almost 100 people – a figure that will double by the end of this year. ☄️
The new repair procedure with the engine in vertical position is unique in North America.
The vertical solution

Considerable work is necessary to **disassemble a V2500 fan case**, but an innovative alteration of the usual procedure helps reduce the effort significantly: Simply remove it with the engine standing vertically on the fan case.

Certain damages to the fan case that are outside of manual limits require the removal and replacement of the V2500 fan case. The standard engine manual procedure describes the removal of the fan case with the engine in horizontal position. However, this procedure has consequences: The engine manual explicitly refers to a number of "major mating engine flanges". If any of these flanges are separated, this is defined as a shop visit. This kind of shop visit typically entails the performance of an additional number of Airworthiness Directive (AD) notes, for example on the high-pressure turbine (HPT) hubs. Obviously, this results in an increased volume of work, longer downtime and higher costs.

However, this requirement can be circumvented by flipping the engine vertically and then removing the fan case. A vertical removal does not separate a "major mating engine flange". In order to perform this alternative solution, a number of prerequisites have to be met. Before a Mobile Engine Services fan case replacement is performed, the experts in Tulsa first inspect the engine to make sure there are no additional findings. Further, the shop facility must offer the necessary capabilities, and specially trained technicians must be at hand, as the separation of the connections between fan case and core engine are handled differently. Therefore, when the first disassembly of this kind was performed for JetBlue in Tulsa, the local team was additionally supported by a group of experienced technicians from Frankfurt. Today the Tulsa team is qualified to perform this procedure independently and has even improved in efficiency. After the work is completed, a test run is performed. Lufthansa Technik has the necessary test stand in Tulsa and can fulfill this requirement without difficulties.

**Unique in North America**

There are numerous substantial advantages to this process. The entire repair process requires a total of ten working days – a fraction of a typical shop visit. As no "major mating engine flange" is separated, the performance of AD notes characteristic of a typical shop visit can be omitted. This way, the engine is available again for use faster. Furthermore, repair costs are significantly lower when AD notes are not a factor.

So far, this new repair procedure is unique in North America. It represents a significant expansion of the Mobile Engine Services offered by the Tulsa engine shop. Within the scope of project visits that last up to 30 days, repairs are performed that aim to remedy a specific defect. In contrast, regular overhaul events intended to extend the aircraft's service life often take much more than 60 days.

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**Clemens Geerkenn**

Head of Sales Engine Services – The Americas

Phone +1-305-459-3407

clemens.geerkenn@lht.dlh.de

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**TIM HALLMAYER** has been appointed Sales Manager for VIP and special mission aircraft. After finishing technical business management studies, Tim Hallmayer joined Lufthansa Technik in 1998 as Planning and Purchasing Manager. Following responsible positions as Customer Engineer and Account Manager for VIP aircraft customers, he worked as Sales Manager for India, based in Mumbai. In 2013, he returned to the VIP & Special Mission Aircraft division as Product Sales Manager for Maintenance and Modification. In his new position, Tim Hallmayer is responsible for all Lufthansa Technik services and products for VIP and special mission aircraft customers.

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**JOERG FEMERLING** has taken on responsibility as Senior Director Product Sales, Key Account & Product Management in the Fleet Services division of Lufthansa Technik. With a degree in mechanical engineering, Joerg Femerling began his professional life at Lufthansa in 1979. After filling various positions in Quality Management, Production Engineering Engines and Customer Service Engines, he became Manager Customer Support Engines for the region Asia Pacific in 1998. In 2002 he was assigned as Manager of Powerplant Services at Ameico Beijing. In 2006 he joined Lufthansa Technik in Hamburg as Director Sales Europe. In 2008 he joined Lufthansa Technik AERO Alzey as Vice President Marketing & Sales. Before being appointed to his new position, Joerg Femerling was Vice President Corporate Sales, Latin America and the Caribbean.

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**ROBIN JOHANSSON** has taken over the position of Senior Director Corporate Sales for Latin America and the Caribbean. With a practical background as car and aircraft mechanic and an MBA degree in aircraft engineering, Robin Johansson joined Lufthansa Technik in 1997 as Senior Project Manager for aircraft component management. In 2001 he took over as Senior Sales Manager for India and the Philippines before taking over the Senior Sales Director Management position for the entire region South East Asia/Australia/Pacific. Prior to the latest promotion, Robin Johansson held the position of Senior Director Product Sales and Product Management in the Fleet Services division.
Power boost during flight

To enable passengers to power up their personal devices on board short-haul flights, Lufthansa Technik has developed different cost-efficient solutions for USB charging. Installed in the overhead panel or directly attached to the seat, they can also open up additional revenue possibilities for airlines.

The need to recharge laptops, smartphones and tablets is constantly growing among passengers. This development is boosted by the increasing availability of connectivity and wireless inflight entertainment offerings. With a portfolio of three different USB charging solutions, Lufthansa Technik offers airlines a flexible and cost-efficient approach to inflight power with the option to gain ancillary revenue.

“Focused on the pain points experienced by airlines, we have defined a retrofit portfolio with tailored solutions for different target groups: USB Power S, M and L”, says Michael Goldbach, product owner at the business unit Aircraft Modification. All three retrofit solutions require low maintenance and are designed to minimize the total cost of ownership. The complete solutions can be installed in just one night shift and easily removed again without extensive work in the aircraft cabin. The seat certification remains unchanged.

**Overhead or attached to the seats**

The first USB power solution (USB Power S) can be simply installed in the passenger service unit (PSU) within the overhead panel and is supplied by the untapped energy of the reading lights. “As there is no need for additional installations, the system is approximately 50 percent lighter than conventional products”, states Malgorzata Polanska, Project Manager Original Equipment Innovation. The other two USB power solutions (USB Power M and USB Power L) can easily be attached to any kind of seat. They do not affect the existing aircraft seat certification (ETSO/TSO). The intelligent design does also not compromise passenger comfort, and thanks to an illuminated plug, passengers can easily find the USB connector.

All solutions provide USB-A plugs for powering the personal devices of the travellers – upgrades and further outlet types such as USB-C outlets are in development. The power output is set to 10W, but the seat-installed solution can be upgraded to 15W on customer request.

The passenger service unit in the overhead panel can accommodate three outlets for three passengers. For the seat-mounted solutions, two outlets are the basic configuration, with the option to extend to four.

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<table>
<thead>
<tr>
<th>Basic features:</th>
<th>Outlet position passenger</th>
<th>Number of outlets per passenger</th>
<th>Outlet type</th>
<th>Power output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instantly charges device</td>
<td>PSU channel</td>
<td>3 outlets per 3 passengers</td>
<td>USB-A, USB-C*</td>
<td>10W max</td>
</tr>
<tr>
<td>Instantly charges device</td>
<td>Near to the seat</td>
<td>2 outlets per 3 passengers*</td>
<td>USB-A, USB-C**</td>
<td>10W*</td>
</tr>
<tr>
<td>Requires user action to generate ancillary revenue</td>
<td>Near to the seat</td>
<td>2 outlets per 3 passengers*</td>
<td>USB-A, USB-C**</td>
<td>10W*</td>
</tr>
</tbody>
</table>

* upgradable | ** under evaluation

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www.lufthansa-technik.com/new-products
open up additional income, airlines can opt for an ancillary revenue enabler. The various digital features provide an array of potential revenue streams, e.g. in the L version, the display of advertisements or to charge passengers for reloading. All USB power products by Lufthansa Technik are turnkey solutions. If desired, optional installation support will help airlines to easily and quickly power up their fleet for the comfort of their passengers.

USB Power S: Product Management
Original Equipment Innovation (OEI)
Phone +49-40-5070-2665 | oei@lht.dlh.de

USB Power M and L:
Stefan Steinberg
Manager Product Sales
Phone +49-40-5070-60141
stefan.steinberg@lht.dlh.de

Benefits
+ High reliability and low total cost of ownership
+ Overnight installation of the complete equipment
+ USB plugs mounted overhead or to seat
+ Seat certification remains valid
+ Easy system removal (e.g. for aircraft lease returns)
+ Ancillary revenue enabler

More awareness for composites

Lufthansa Technical Training is offering a new Composite Awareness web-based training course. The interactive training provides basic information about composite material technologies, their properties and specific maintenance procedures.

State-of-the-art technologies and composite materials are used increasingly in today’s aircraft, and this trend will continue in the future. In order to avoid high follow-up costs caused by damage and incorrect assessments, airlines have to provide their maintenance personnel with the necessary expertise, experience and awareness to handle modern materials such as composites. Lufthansa Technical Training has a solution that covers exactly these requirements and thus optimally supports its customers: the new Composite Awareness web-based training, with a duration of only two hours.

With this web-based training, which was jointly developed with Lufthansa Technik, maintenance staff is trained in the use of composite materials in a timely, efficient, cost-effective and location-independent way. Through a modular structure, the training introduces participants to repair techniques required to handle damaged composites. It enhances the learner’s awareness about the potential causes of damage as well as the need for proper reporting and documentation. The course informs learners about general handling and storage procedures for composite materials and components, and teaches them about the specific health and safety requirements. As part of the initial training, course participants are familiarized with composite materials in general and get a detailed overview of repair techniques. Every mechanic who is involved in structural repair gets the chance to refresh his or her knowledge about composite structures. The preparatory training is a good basis for specialized structure training, for example advanced composites repair. Furthermore, this web-based course is AMC 20-29 compliant.

The HTML5-programmed training only requires a device – e.g. desktop PC or tablet – with an internet connection, and can be accessed via all common browsers. Through the use of various media, the training offers a high level of interactivity. Many practical examples help provide the trainees with the awareness they need to avoid damage to composites.
Cozy kitchen

The door and galley areas of an aircraft cabin are often affected by drafts and cold spots causing discomfort for crew members. As current heating solutions have drawbacks, Lufthansa Technik has developed an improved product – HeatNOW, a new system based on heated coating.
At cruise altitude, the floors of aircraft cabins are often uncomfortably cold. This is the result of cold spots in the aircraft structure that create a connection to the outside air, which can get as cold as -50 °C. Especially the galley areas are affected by the temperature drop. Several airlines have received complaints about this situation, i.e. from their flight attendants.

Apart from crew members’ discomfort regarding coldness during flights, the iciness resulting from environmental weather conditions may lead to moisture building up around the door seal. If this issue is not resolved, it can even hinder the safe opening of doors in icy conditions, which can occur after landing during turnaround, catering or while boarding passengers.

The combination of moisture and freezing conditions with ice build-up around the door seal can even lead to girt bar freezing and result in inadvertent emergency slide deployment.

Until now, heating elements with resistance wires were used to ensure comfort for crew members in the door and galley areas. However, due to their small diameter, these resistance wires are rather sensitive and susceptible to mechanical damage, which can occur, for example, through point loads on floors equipped with these wires. Last year, 200 of these heating panels were removed from Lufthansa aircraft alone, and 190 of them had to be scrapped. Only ten could be repaired successfully.

Spare parts for these heating elements cost roughly as much as a mid-range car; if the warranty is expired, the exchange of defective elements becomes a costly affair. This motivated Lufthansa Technik’s engineers to search for alternatives to the resistance wire approach. Together with the company Villinger, they developed a solution based on a heated coating approach which, as a standardized heating pad, offers a whole host of advantages for use in aircraft cabins.

**Robust and cost-efficient**

The heated coating provided by Villinger has PTC (positive temperature coefficient) properties: Its internal electrical resistance increases with higher temperatures. This self-regulation is one of many other benefits of the heated coating, since it does not create hot spots.

The solution is integrated in the heating pad as a film-shaped heating element. To ensure high mechanical robustness, the heated coating is part of a carefully constructed sandwich structure protected by layers of carbon fiber on both sides. Due to its high mechanical robustness and self-regulating traits, the lifespan of the heating pad is higher than the existing solution, which uses resistance wires. Considering the numerous exchanges of heated floor panels only, airlines are definitely looking for a more reliable solution.

Addressing concerns regarding repair and maintenance, the thin and flexible design of the heating pad allows improved handling. It can be removed and exchanged without much effort. Maintenance costs are much lower since the design facilitates maintainability. In addition to these clear advantages, the new solution is even offered at a much lower price than the existing solution. If one compares existing heating systems, the heating pad ensures high resistance to mechanical damage, i.e. higher durability, at much lower costs. In addition to lower maintenance expenses and effort, cabin crew discomfort will decrease as well. HeatNOW not only improves their work environment, it increases satisfaction among crew members.

Lufthansa Technik will offer HeatNOW as a complete installation kit, assembled for different aircraft types at a very competitive price. The system is currently being tested for approval on Airbus A320 and the Boeing 737 and 757. Project manager Florian Pagel is expecting the Supplemental Type Certificate (STC) to be issued by mid-May. He is convinced of the superiority of this new product: “The fast development of HeatNOW from the idea to market maturity is a great technical success."
More than ever before, the new booth’s modular design enables Lufthansa Technik to showcase its brand in a distinctive and appealing way,” explains Ulrike Behrens, who oversaw the development and implementation of the new concept. In addition, its design convincingly represents the company’s new brand values such as empathy, precision and above all excellence. With its high manufacturing quality and exclusive design, it tells the story of the Lufthansa Technik brand in an immersive, interactive, and inspiring manner. Taking the new booth design as a basis, it was decided to bring the newly-developed brand positioning “Excellence” into the foreground. The result is a concept that turned into an all-encompassing brand experience.

Every trade show offers valuable opportunities to get in touch with our customers and present Lufthansa Technik’s latest products and services in an attractive way.

Ulrike Behrens
Head of Corporate Marketing
Phone +49-40-5070-65794
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Lufthansa Technik’s new booth concept was designed by the architect Ulla Goetz and built by Droste Werkstätten.
Growing demand in times of economic uncertainty

At this year’s MRO Russia & CIS conference, presentations centered on the topics of market development, digitalization and the new aircraft register. Lufthansa Technik joined the discussion with three speeches.

The conference started with a well-intentioned provocation: Russian airlines are “the biggest money-losers ever,” stated Andrey Kramarenko, Leading Expert for Aviation at the Moscow Higher School of Economics. During his opening speech at this year’s MRO Russia & CIS conference – the most important event for the MRO market in Russia and the CIS states – Kramarenko clearly warned of upcoming risks for the Russian aviation industry and for the Russian economy. Nearly 1,200 delegates came to the event in Moscow. Lufthansa Technik was present with its own booth at the trade fair and three speeches at the conference.

Digitalization of MRO

In particular, Kramarenko warned of the ambitious growth targets of Russian airlines, which do not correspond to the weak development of the Russian economy. In 2018, Russian airlines increased their seat capacity by 15.6 percent, but the operating margin of minus 5.0 percent indicates the biggest loss of the past ten years by far. Five leading Russian leisure airlines expect demand to grow by 30 percent in 2019.

Christopher Weafer, CEO of Macro Advisory, pointed out that a further devaluation of the Russian ruble and a weakening of Russian economic growth are very likely to occur this year, partly due to U.S. and EU sanctions. Activities in the field of digitalization have now reached Russia and the CIS states and are in full swing. According to the independent expert Pavel Tereschenkov, Lufthansa Technik with its AVIATAR platform is the only relevant player on the MRO side in the field of “big data” analysis. The other relevant players are the OEMs (Airbus, Boeing and GE). Tereschenkov sees access to data and the leverage of intellectual property (IP) as a key driver for OEMs to quickly gain market share in the MRO market. Chris Markou, Head of Operational Cost Management Flight Operations of IATA, clearly indicated that all data generated by aircraft belongs to the operator.

Paperless maintenance is regarded in Russia/CIS as a key concept for increasing efficiency in the MRO sector. Mark Joppe, Lufthansa Technik Project Manager Paperless Maintenance, presented a case study on this topic at the invitation of the organizer of the Moscow conference. Another major issue for Russian airlines is the new aircraft register. All aircraft operated by Russian operators in Russia will have to be transferred to this new register, causing many organizational and bureaucratic issues which were discussed in a separate conference session.
Competition and cost pressure

Digitalization and the Boeing 737 MAX grounding were two of the most discussed topics at this year’s MRO Americas. Lufthansa Technik provided substantial contributions to the world’s largest MRO trade fair and conference.

Whatever the core topic was: Virtually each of the 54 conference sessions at this year’s MRO Americas was related directly or indirectly to the digitalization of the MRO business. As expected, Airbus, Boeing and Lufthansa Technik were marketing their data platforms Skywise, AnalytX and AVIATAR, but airline representatives were also highlighting the significance of data analytics for predictive and preventive maintenance activities.

With 16,000 visitors and 1,900 trade fair booths, MRO Americas is the world’s largest trade fair and conference dedicated to MRO. Parallel to this year’s event in Atlanta, Georgia, two and a half days of conference with 54 presentations and discussions took place. Lufthansa Technik was again present with a trade fair booth and a contribution to the conference.

Digitalization of MRO business

In the panel discussion on “Crossing the Digital MRO divide”, David Doyle, Lufthansa Technik’s head of Business Development, Innovation Management and Product Development, was speaking up for AVIATAR. Doyle was strongly opposed to the idea that in the end only one platform might survive on the market: “The market leaves enough room for a number of different platforms. We will have competition, which is good news." In contrast to previous conferences, Airbus and Boeing representatives put great emphasis on the importance of data exchange with other market participants. This also reflects the idea of the newly created AVIATION DataHub, to which Doyle also referred during the panel discussion. According to Ed Bastian, CEO of Delta Airlines, the biggest challenge in the digitalization of the business is cyber security.

Boeing 737 MAX

The grounding of the entire fleet of Boeing 737 MAX aircraft by the authorities after two accidents was also the subject of many conference sessions. But at no time were there any open accusations against Boeing, to the contrary: Representatives of airlines currently or soon operating the aircraft type clearly expressed their trust in Boeing that the 737 MAX will take off in full safety and security in the future. John Kelly, Vice President Technical Operations of the Canadian airline WestJet, spoke in detail about the problems that the temporary drop of 13 operating aircraft means to the airline: “We have increased the utilization of the rest of our fleet, which not only means stress to the aircraft, but also stress to the involved colleagues.” Consultant Kevin Michaels from AeroDynamic assumed that the Boeing 737 MAX will remain on the ground for several more months and that there will therefore be postponements of planned retirements in the summer season. At the same time, there will be a high demand for MRO for the remaining mature fleets.

Shifts in the MRO power structure

Many speakers were referring to the personnel shortage in the MRO industry. It is a big challenge not only to compensate the large number of mechanics that will leave the industry due to retirements, but also to hire even more colleagues as the MRO business is on a constant growth path. Another topic discussed at MRO Americas was that the large airframers Airbus and Boeing are trying to enter the MRO market. New developments are emerging from the airframers’ efforts to increase their share. Dave Marcontell, consultant to Oliver Wyman/CAVOK, said that MRO was the only area still under the control of the airlines in order to counter the cost pressure on them. The airlines have only a very limited influence on the large cost pools such as fuel and personnel – and are putting high cost pressure on MRO providers or partners. This, too, is one of the reasons why great hopes are placed in predictive maintenance due to its great cost-cutting potential. In this way, digitalization could also lead to a reduction in airlines’ operating costs.
Meet us at ...

21 – 22 May 2019 | Vilnius
**MRO BEER**

MRO BEER (Baltics, Eastern Europe, and Russia) offers the opportunity to create new and stronger partnerships for success. Lufthansa Technik will focus on products and services dedicated to operators in Eastern Europe and Russia/CIS and the digital platform AVIATAR.

21 – 23 May 2019 | Geneva
**EBACE**

The European Business Aviation Convention & Exhibition is a premier event and the annual meeting place for the European business aviation community. The exhibition attracts business leaders, government officials and manufacturers.

26 – 28 May 2019 | Cancun
**ALTA CCMA & Aircraft MRO Conference**

For decades, the Aeronautical Material Procurement Committee (CCMA) has been bringing together Latin American & Caribbean airline technical buyers and industry suppliers. The event provides opportunities for interaction and networking.

4 – 6 June 2019 | Frankfurt
**ap&m Europe**

The global MRO procurement expo gathers the airline supply chain business. The ap&m summit on the first day offers interactive panel discussions, industry case studies and technical presentations, and the exhibition takes places on the second and third day.

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**Talks on digitalization**

Successful premiere: 43 representatives of airlines and partner companies met for the first “Digital Aircraft Forum” in Singapore.

The “Digital Aircraft Forum” creates an exchange platform with customers and business partners to present and discuss use cases of digital technologies in the field of MRO and airline operations support. “Discussion between the participants was our key objective”, said Alaleh Eschenburg, Marketing Manager and organizer of the event. “We were very pleased to welcome many representatives of prestigious airlines in Singapore.”

Among the participating airlines were Thai Airways, Singapore Airlines, Virgin Australia, Korean Airlines, Japan Airlines and All Nippon Airways, to name just a few. In addition to representatives of the airlines, delegates from lessors and other MRO providers also attended the forum. Gerald Steinhoff, Vice President Corporate Sales Asia Pacific, held the welcome speech. Dr. Christian Langer, Head of Digital Strategy, Innovation & Transformation of Lufthansa Group, presented an outlook on the future of the industry regarding digitalization topics. Acting as a moderator, Frank Martens, Head of Product Sales, Digital Fleet Solutions, was hosting the event.

Marcus di Laurenzio from SWISS and Christian Ambiehl from Wizz Air, representatives of airlines that are among the first partners of Lufthansa Technik’s AVIATAR digital platform, gave an insight into their experiences and the impact of digitalization on their airlines. Particularly positive was the feedback from the conference participants on the three workshops in which an intensive discussion took place. One of the workshops addressed the issue of predictive maintenance in cooperation with major component OEMs. In another workshop, the challenges of today’s high-frequency operation and the impact of technical interruptions were discussed. The AVIATAR platform was subject of the third workshop. At the end of the one-day event it was clear that the “Digital Aircraft Forum” will be continued in the future. The next event will take place in summer in Zurich (Switzerland).
World of services

Total Support Services
Total Support Services customers enjoy cost-efficient and reliable flight operations while being able to focus on their core business.
- Total Operational Support (TOS®)
- Total Technical Support (TTS®)
- Total Base Maintenance Support (TBS®)
- Total Material Operations (TMO®)
- Total Component Support (TCS®)
- Total Engine Support (TES®)
- Total Landing Gear Support (TLS®)
- Aircraft Leasing & Trading Support (ALTS®)

Single Services
Single Services, letter checks, engine overhauls and repairs of single components form a unique range of products and services.
- Aircraft Services
- Component Services
- Engine Services
- Landing Gear Services
- VIP & Special Mission Aircraft Services

Special Services
Lufthansa Technik offers products reaching beyond standard manual MRO services.
- Composite Repairs (ARC®)
- Engine Parts & Accessories Repair (EPAR)
- Maintenance Management Services (MMS)
- Logistics and maintenance training
- AOG services
- Surface treatment

Original Equipment Innovation (OEI)
Lufthansa Technik has successfully established a line of cabin products.
- Cabin management and IFE systems
- Aircraft and cabin equipment
- Connectivity
- Patient transport solutions

Digital Services
Lufthansa Technik provides innovative digital platforms to support technical operations.
- AVIATAR
- manage/m®

Design Organization
Across all of its services, Lufthansa Technik supplements its offers with the capabilities of an Approved Design Organization:
- Major changes (STCs) in the areas of structures, systems, cabin and avionics
- Major repairs
- Minor changes and minor repairs
- Flight conditions

Please enter any desired search item into the capability finder – products, aircraft/engine types or part numbers – to find the result quickly. The search can also be refined by regions or Lufthansa Technik facilities.
**Boeing**

- **737 CL/NG**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: CFM56-7B
  - Completion

- **737 MAX**
  - Component Services
  - Further services in preparation
  - Engine Services: LEAP-1B (in preparation)

- **747**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: JT9D, PW4000, CF6-80C2
  - Completion

- **757**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: RB211-535
  - Completion

- **767**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: PW4000-94, CF6-80C2
  - Completion

- **777**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Completion

- **777X**
  - in preparation

- **787**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services*: LEAP-1B (in preparation)
  - Completion
  - *schedule to be defined

- **MD-11**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: CF6-80C2, PW4000-94

**Regionals**

- **Bombardier Q400**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: PW100, PW1150

- **Bombardier CRJ**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: GE CF34

- **Embraer**
  - 135/145, 170/175, 190/195
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: GE CF34

**Business jets**

- **Acj**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: CFM56, Y2500-5A
  - Completion

- **BBJ**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: CFM56-7B
  - Completion

- **Bombardier**
  - Challenger, Learjet, Global Express
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: CF34

- **Embraer**
  - Legacy, Lineage.
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: CF34
Let’s talk about solutions

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