Composite structures

The benchmark in composites
20 years of innovative repair solutions

Corporate Marketing
Brand
new brand
Focusing on the customer
and making strengths visible

Innovation and technology
“Bridging the digital
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David Doyle about the company’s
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First 787 base maintenance customer

Virgin Atlantic Airways has become Lufthansa Technik’s launching customer for base maintenance checks on the Boeing 787.

At its Irish overhaul facility Lufthansa Technik Shannon, the last in a series of six contracted 787 aircraft was recently redelivered to the airline. The scope of work for each aircraft included a C1-check plus several modifications and additional repair work.

Philip Wardlaw, Vice President Engineering and Maintenance at Virgin Atlantic, commented: “Lufthansa Technik has been a reliable and trustworthy service partner to Virgin Atlantic for many years and this has now continued with the Boeing 787. We have been very impressed with the hard work, dedication and professionalism of the Lufthansa Technik Shannon team and the great teamwork shown between the two companies.”

Thomas Rueckert, Senior Vice President Base Maintenance at Lufthansa Technik, said: “The successful completion of our first 787 base maintenance contract marks an extremely important milestone for our 787 service portfolio and a further expansion of our long-standing relationship with Virgin Atlantic. We invested extensively in training, tooling and preparation for the arrival of the Boeing 787, and it certainly paid off as we achieved competitive turnaround times for these inputs. I would like to thank our employees at Lufthansa Technik Shannon for their dedication and commitment to making this a success.”

Worldwide, Lufthansa Technik currently has more than 200 Boeing 787s from 15 customers under exclusive contract. The MRO provider has established a portfolio of globally available products and services to provide a comprehensive technical support for all commercial and VIP 787 operators and for all phases of the Dreamliner’s life cycle. Besides line and heavy airframe maintenance, this includes integrated material support and composite repairs as well as landing gear services, Aircraft Production Inspection Program and access to Lufthansa Technik’s digital fleet solutions.

Approval for A350-1000 overhauls

Lufthansa Technik Malta // The heavy maintenance facility of Lufthansa Technik in the Mediterranean is now officially prepared to carry out all overhaul work on the Airbus A350-1000. The company has received the requisite license from the German Federal Aviation Office (LBA).

The recent certification amends the approval to perform overhaul work on the baseline A350-900, which was already received in 2018. With immediate effect, Lufthansa Technik Malta is hence also permitted to work on the stretched version of the twin-engine widebody. The necessary overhaul lines and docks were already adapted to the new subtype at the time of the earlier approval.

Marcus Motschenbacher, Chief Executive Officer of Lufthansa Technik Malta, said: “With this approval, we have further cemented our leading position as the only Airbus widebody overhaul site in the European Lufthansa Technik network. We are therefore very well positioned to provide long-term technical support for the entire A350 range. This is a great success for the Lufthansa Technik Group.” Already in 2018, more than 50 employees of Lufthansa Technik Malta attained the necessary qualifications and practical knowledge to work on the A350-900. These skills are now also being used to overhaul the larger type. More than three million dollars has been invested in the preparation for overhauls of both types, with the first three customers expected until the end of this year. //
MRO partnership with Meggitt

Component Services // Meggitt PLC, a leading international company specializing in high performance components for the aerospace, defense and selected energy markets, has signed an agreement with Lufthansa Technik for the provision of comprehensive component MRO services for commercial aircraft in mainland China. Under the agreement, Lufthansa Technik Shenzhen will build local MRO capabilities for Meggitt products including heat exchangers, valves, fire detectors and fire suppression. The partnership will provide customers in mainland China with world-class repair and service levels for a range of products. Stewart Watson, President of Meggitt’s Services & Support division, said: “This is a long-term partnership for the fastest growing market in the world and combines Meggitt’s OEM know-how with Lufthansa Technik’s MRO expertise.” Asia is one of the fastest growing regions for aerospace, with a large number of aircraft entering into service to meet growing passenger demand. An additional 4,700 aircraft are forecast to be delivered into the region over the next decade.

HOP! extends component support contract

Spairliners // HOP!, an airline of the Air France Group, has extended its business relationship with Spairliners by signing a long-term contract for the comprehensive component support of HOP!’s E-Jet fleet. HOP! currently operates a fleet of 15 Embraer E170 and eleven Embraer E190. During the next two years HOP! will add an additional six brand new E190 to its fleet and will then operate 32 E-Jet aircraft. The new contract includes a dedicated on-site stock for HOP!’s exclusive use in Paris-Charles de Gaulle, improved logistic processes and a customized and automated IT interface. Spairliners will provide its component services from its pool location in Paris. “We are very happy to enter into a direct contract relationship with Spairliners and look forward to support our operations to the best possible level via the highly customized product and efficient setup of Spairliners,” Sylvain Fagot, Engineering & Maintenance Director of HOP!, says.

Lufthansa Technik intensifies training efforts

Personnel // The Lufthansa Technik Group is substantially increasing its commitment to training young people in Germany; 246 new traditional and dual-study trainees have joined the company – an increase of 55 percent over the previous year. Lufthansa Technik is now home to 616 young people on their way to professions in technical aircraft services, industrial engineering or aircraft logistics. In 2019, 135 young people will start their training in Hamburg, 78 in Frankfurt, 14 in Arnstadt, 14 in Alzey and five in Munich.

In addition to proven measures, Lufthansa Technik is also using numerous new approaches to personnel marketing. For example, in 2019, the company started running campaigns in Hamburg’s subways and fast-food restaurants as well as innovative videos on its social media channels. In addition, the Group broadened its presence at trade fairs and intensified its cooperation projects with schools and universities.

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.
Long-term TCS® for Asiana’s A320 fleet

Total Component Support // Asiana Airlines has signed a comprehensive component support contract with Lufthansa Technik. Under the terms of the new agreement, Lufthansa Technik will provide Total Component Support (TCS®) for the entire fleet of Airbus A320 family aircraft, including the A321neo version joining the fleet in the future. The ten-year contract covers a maximum of 79 aircraft.

Danny Kim, General Manager of Asiana Airlines, said: “Lufthansa Technik is a strategic partner for us who has proven over years that it can guarantee long-term security in the material supply of our fleets. We are convinced that this successful cooperation will also prove itself in the component supply of our new A321neo aircraft.”

The contract holds provisions for being converted from an integrated Total Component Support (TCS®) agreement including pooling to a Total Component Maintenance (TCM) closed-loop component repair and overhaul support in the mid-term. Lufthansa Technik and Asiana Airlines have been working together for more than 25 years already.

Lufthansa Technik also provides component maintenance for the Asiana Boeing 777-200ER fleet, an integrated Total Component Support for the airline’s Airbus A320, A330 and A350 fleets as well as V2500 and CF6 engine support and heavy maintenance for the carrier’s Airbus A380 fleet.

Croatia Airlines renews contracts

Component and APU Services // Croatia Airlines has extended two long-standing contracts with Lufthansa Technik. The extended agreements cover the Airbus A320 family fleet of the state-owned airline of Croatia, which is currently operating six aircraft of this type. An existing Total Component Support (TCS*) contract was extended by seven years. At the same time, the contract covering auxiliary power unit (APU) services was extended by five years. Croatia Airlines will also become a user of Lufthansa Technik’s digital platform AVIATAR.

Davor Bujan, Technical Director Croatia Airlines, commented on the contract extension: “Technical expertise has strongly contributed to Croatia Airlines being recognized as a safe air company. This cooperation expansion contract is another confirmation of the excellent relations between us and our long-standing partner, which I believe will develop further to the benefit of both parties.”

Croatia Airlines will also benefit from AVIATAR, Lufthansa Technik’s independent digital platform for the aviation industry. Using selected products and solutions, Croatia Airlines will see increased reliability and aircraft availability.

Airfoil repair specialist expands facility

Airfoil Services (ASSB) // The 50/50 joint venture between MTU Aero Engines and Lufthansa Technik, has broken ground on its facility extension. This expansion grows facility space by 5,200 square meters and will increase current repair capacity from 650,000 to 900,000 parts per year by 2020. This development underlines the shareholders’ commitment to increasing its footprint and investing in Malaysia.

“There is significant market demand for airfoil repairs and we are delighted to be expanding the facility to cater to our customers’ needs,” commented Wim van Beers, Managing Director of ASSB. The company is also planning to add another 200 jobs over the next three years, increasing the workforce to around 700 employees.

ASSB has seen great success since the company was founded in 1991. It boasts over 80 customers worldwide and provides a comprehensive range of airfoil repair services for high-pressure compressor (HPC) and low-pressure turbine (LPT) airfoils – for widebody and narrowbody engines such as the CF6-80C, GP7000 and the CFM56 and V2500 engine families.
Today, lightweight structures made of carbon fiber and fiber-glass are the core of Lufthansa Technik’s Airframe Related Components (ARC®) business.
More than a benchmark in composites

Over the past 20 years, Lufthansa Technik has created more than just a brand with ARC®: Today, Airframe Related Components is the benchmark for the repair of composite structures and bonded materials, standing for global market strength, stable operations and modern work processes as well as for innovative and digital solutions.

One thing has not changed since Lufthansa Technik pooled its expertise in structural components under the ARC® brand in the late 1990s: At the ARC® workshops, knocking and listening are still a part of the daily routine. The small tap hammer used to knock on composite structures to detect delamination continues to be an indispensable tool of the trade. Even though good hearing remains as one of ARC® mechanics’ core competencies, the business and market presence of ARC® have changed dramatically over the last two decades. “Back then, aircraft components were primarily made of metal and only a small part of carbon fiber. Nowadays lightweight structures made of carbon fiber and fiberglass are our core business,” says Michael Kirstein, Senior Director Aircraft Systems, who is responsible for ARC® at Lufthansa Technik. “Over the years, we have continuously broken new ground with creativity in developing further repairs and processes. This includes building up capabilities for the new engine types like 787, A350 and A320neo from entry into service.”

Licensed for the newest types

Agreements with OEMs are essential nowadays in order to access technical data and approvals for carrying out repairs. Lufthansa Technik has various long-term agreements with OEMs in place. With Collins Aerostructures, Lufthansa Technik is licensed since 2013 to service 787 nacelle components on both the GEnx-1B and the Trent 1000 engines. In 2016, a new agreement with Collins Aerostructures covering the A350 nacelle components on the Trent XWB engine was signed. In 2018, Lufthansa Technik signed with Safran Nacelles to support A320neo nacelles powered with the LEAP-1A engine. What’s more, Lufthansa Technik is the only MRO

As Lufthansa Technik’s in-house experts for composite structures, ARC® has teamed up with the Original Equipment Innovation division to set up a competence center for radomes.

We strive to be the better choice to keep our customers flying and we want our service to set us apart.

Michael Kirstein
provider authorized by Middle River Aerostructure Systems (MRAS) to offer worldwide repairs and spare parts pooling for the GEnx-2B thrust reversers.

It is not by chance that around 200 airlines from all over the world, including many major carriers, now rely on Lufthansa Technik for the supply of large composite components. That is equivalent to a fleet of around 3,000 aircraft. The figures speak for themselves: Every year, Lufthansa Technik’s composite workshops fit 600,000 fasteners and thousands of square meters of carbon fiber and honeycomb structures. And every day, an average of seven components are dispatched to Hamburg alone, with large and small amounts of damage ranging from bird strikes and ramp damage to age-related repairs.

Today, the fast supply of spares to customers is one of the core areas of the ARC® business. In an AOG situation, Lufthansa Technik can ship components from its warehouses around the world (e.g. Frankfurt, Munich, Shenzhen, Hong Kong, Miami, etc.) in a matter of hours. Lufthansa Technik has a pool of its own assets with a value of more than 150 million dollars in addition to its access to OEM pools for GEnx-1B, Trent 1000, Trent XWB and LEAP-1A nacelle components.

In 2017, Lufthansa Technik developed its own online platform marc (major asset realtime components). This online marketplace is the world’s first digital platform for locating various major assets. Now fully integrated under the umbrella of AVIATAR, marc has already attracted users at almost 40 airlines. Jointly, eight suppliers of major assets currently offer a total of around 800 parts to operators registered on the platform. Lufthansa Technik itself uses the platform to fulfill specific AOG requests in situations that extend beyond routine contractual demands. As these parts are often very rare and expensive – sometimes with only one available worldwide – marc provides registered operators with unparalleled transparency.

Lufthansa Technik has a pool of its own assets with a value of more than 150 million dollars.

Our employees make the difference. Each and every one of us wants to make a contribution.

Michael Kirstein
What makes the ARC® business unit stand out today?

Michael Kirstein: ARC® has been Lufthansa Technik’s trademark for composite repairs for 20 years now. Today we are one of the MRO industry’s undisputed experts in carbon fiber repairs and the world’s leading manufacturer-independent service provider in this field. We can be very proud of that.

What approach lies behind this success?

We strive to be “the better choice to keep you flying”. Customers always have a choice. We want our service to set us apart, because of our range of product capability, because of the speed of our logistics support, especially in AOG situations, because of our vast experience in composite repairs, and because of the proximity of our services to the customers’ doorstep. Our employees make the difference. Each and every one of us has to and wants to make a contribution so that we can live up to this service commitment.

What sets Lufthansa Technik apart as a repair shop for composites?

Our certification as a design organization (21J) is a central part of our formula for success and differentiates us from our competitors worldwide. This core competence allows us to develop and certify our own repairs. In this context, rather than replacing material our organizational drive lies in preserving the structures and thereby offering a more economic and better service. And because we work independently as well as in close cooperation with the different OEMs, we are essentially a one-stop shop for customers. Our services cover all general and warranty repair needs for composite structures of every aircraft type, from nose to tail, regardless of which manufacturer their assets were built by.

What role does the availability of spares play today, in particular when it comes to nacelles for the latest aircraft types?

Our business is strongly driven by condition-based maintenance. But given that new nacelles cost tens of millions of US dollars, most operators only have a few or no spares in stock themselves. We have therefore made considerable investments into loan and exchange units, which are available in our global warehouse network. In addition to our own units we also have access to the
OEM-maintained pools through our various cooperative agreements. This is a very capital-intensive business model and challenges us to keep the turnaround times – and thus the capital tied up in the shop – to a minimum so that the defective parts can be returned to the pools or to our customers as quickly as possible.

How do you meet the challenges of digitalization in your business?

Since it’s our goal to further improve the availability of assets for operators and minimize ground time for such prestige new aircraft, we have the biggest asset of Lufthansa Technik is detect and repair large, damaged areas on wings of aircraft largely consisting of fiber-reinforced composites. Our vision goes also towards the repair of primary composite structures. Given the size of modern nacelles, it’s also necessary to find innovative approaches to logistic services. For instance, Lufthansa Technik has developed a patented nacelle transport box as well as a transport frame and a loading process, specifically fitted to the various freight aircraft and the large nacelle structures of the GE90, GEnx-1B, Trent 1000 and Trent XWB. What’s more, we use 3D scanners to digitalize radomes. With the scanned data, we can produce the exact replica we need to assist us in developing repairs such as those for wide damages and dents. In the end, the repaired radome is as good as new.

Another thing that will be of great interest to us in the future is 3D printing. This additive manufacturing option can become an agile manufacturing option can become an agile production department dealing exclusively with the development and manufacturing of advanced connectivity radomes and fairings both for fuselage and tail mounted solutions. The new competence center for radomes will combine our in-depth expertise on composite structures with proven experience on certified radomes such as our well established and patented TIOS (Two-In-One-Solution) product – entirely developed and manufactured in-house, including several aircraft STCs. Our aim is to be the partner of choice for the realization of connectivity radomes and radome-related parts of any type for all state-of-the-art and future aircraft connectivity systems.

What does the innovation process look like and what are some exemplary technologies?

We have an innovation team that is closely integrated with Lufthansa Technik’s Corporate Innovation department. Here you will find dedicated innovation engineers who work on the operational enhancement of our products and services as well as on research projects. This includes, for example, a mobile robotic solution which allows us to detect and repair large, damaged areas on wings of aircraft largely consisting of fiber-reinforced composites. Our vision goes also towards the repair of primary composite structures. Given the size of modern nacelles, it’s also necessary to find innovative approaches to logistic services. For instance, Lufthansa Technik has developed a patented nacelle transport box as well as a transport frame and a loading process, specifically fitted to the various freight aircraft and the large nacelle structures of the GE90, GEnx-1B, Trent 1000 and Trent XWB. What’s more, we use 3D scanners to digitalize radomes. With the scanned data, we can produce the exact replica we need to assist us in developing repairs such as those for wide damages and dents. In the end, the repaired radome is as good as new.

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What do you think the future holds for the ARC® brand?

Our aim is to further strengthen our innovative capabilities; in particular our repair and production capabilities. We aim to continue to invest in automation, innovation and predictive maintenance as well as in the digitalization of our products and services. With our powerful combination of global asset portfolio and MRO fulfillment, we want to stay one step ahead in the future, positioning ARC® to be the better choice for operators.
customer’s aircraft. Many successful missions each year, often accomplished in a race against time, underline the added value ARC® offers operators worldwide.

Composites for the world

Like other Lufthansa Technik business units, ARC®’s development is characterized by early investments in establishing a regional presence. In Asia Pacific, Lufthansa Technik Shenzhen, founded in 2002, is an important pillar of the network with around 650 employees. The state-of-the-art facility has full in-house capability, offering Asian operators an extensive range of ARC® products which include the latest nacelle types such as Boeing 747-8 and 787 as well as Airbus A350 and A320neo structures.

Lufthansa Technik Middle East in Dubai is another example of how Lufthansa Technik has responded to its customers’ demand for a regional presence. The capacity of the new facility at its Dubai South location doubled at the end of last year. Furthermore, in addition to offering Trent 900 engine services alongside its GE90 thrust reverser capabilities, the facility recently added 787 composite repair capabilities. The required tool for the 787 inlet cowl was accredited in June of this year and is ready to support any customer requirements for the Middle East region. The facility has also invested into local nacelle and radome spares for 787, A350, 777 and A320 aircraft.

The company’s claim of being the better choice for its customers also encompasses leadership that is characterized by new and agile formats. Experienced and qualified employees are involved in decision-making processes, the design of structures as well as new technologies and working methods at an early stage. Michael Kirstein emphasizes: “Every idea and every stimulus helps make our system better for our customers. In particular, this includes optimizing the turnaround times in our workshops to minimize the amount of capital tied up there.”

ARC® is therefore also setting its course for digitalization in the future. In addition to optimizing availability through marc, the search engine for structural aircraft components, “we want to offer our customers structured MRO data in the future in order to provide them with an improved decision-making basis when it comes to removing components on condition. We constantly strive for sustainable methods of reducing MRO costs within an aircraft’s life cycle,” explains Michael Kirstein.

20 years and counting

Following its vision for the future, Lufthansa Technik can look back proudly at 20 years of maintaining composite structures. “No OEM or aircraft manufacturer has this kind of experience across all aircraft nacelle types and the know-how gained from maintenance data and countless in-house developed repairs,” says Michael Kirstein. “I’m convinced that this combination of competence and knowledge sets us apart from our competition. It is also a sturdy foundation upon which our future and our customers can rely on. Other suppliers will find it hard to catch up with that. We permanently strive to be the better choice when it comes to composite-related solutions.”

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Five meters in diameter and six meters in length: The autoclave at the ARC® workshop in Hamburg is the largest of its kind operated by an MRO provider worldwide. It can process composite structures at up to 16 bar pressure and 250°C Celsius, accommodating even the largest parts made of CFRP.
A brand is so much more than just a logo and a striking color. It is what describes a company’s identity. Not just in terms of appearance but, above all, in terms of substance. At least that is how it is meant to be. About a year ago, the marketing team at Lufthansa Technik took a closer look at how the company addresses its customers and partners. And they soon agreed that Lufthansa Technik was far more modern than its visual appearance might suggest. “As a company, we play a leading role in the MRO business and the digitalization of our industry,” says Ulrike Behrens, Head of Corporate Marketing, who is responsible for the entire brand revitalization. “An ambitious claim that should also be reflected in our brand identity.” This realization marked the starting point for one of the biggest brand modernizations in the group’s recent history.

The overhaul started with the basics of the brand, the values, and the guiding principles. At internal work meetings and workshops, it was determined what Lufthansa Technik stands for, and how to describe the identity that all means of communication should incorporate. The result is a new brand model. In the form of a planetary gear, it depicts five values that characterize the employees’ daily work: ingenuity, expertise, empathy, and precision, with the core value excellence in the center. This value is the most important performance promise to customers and partners.
And also the reason why it is an integral part of the newly developed slogan “Excellence in Motion.” It signals reliability in an industry that is constantly changing. A reliability that Lufthansa Technik as a company can only deliver by continuously improving its services and skills.

**Focusing on the customer**

Brands are made for people. This is one of the guiding principles that gave direction to the rebranding of Lufthansa Technik. As well as the focus on quality, customer orientation will be one of the key elements for future communication measures. Whether online or off: The future activities will always be shaped by the challenges faced by customers, partners and the industry as a whole. A customer-centric approach also entails making complex services more comprehensible and transparent. Through an intelligent interplay of text, images, and new media, brand experiences will become more immersive, interactive and inspiring.

**Making strength visible**

Designers, strategists, marketing specialists and executives across all departments developed a new brand identity that expresses the new self-image. New communication media will be airier and more open in future. The visual language will also change. Images depicting technical operations will, of course, remain important. But upcoming designs will focus on unfamiliar perspectives and increasingly on people.

“We have replaced a complex set of rules with simple principles that work both in print and digital technologies,” says Ulrike Behrens. “The new design gives us greater freedom to be creative. It will enable us to be matter-of-fact where it makes sense, and to communicate more emotionally when required.” The new brand attitude will include all communication channels – from classic media activities to social media. The campaign will kick off with a new image campaign in which Lufthansa Technik presents its employees as brand ambassadors.

Three questions to ULRIKE BEHRENS, Head of Corporate Marketing

**Why is Lufthansa Technik being given a new brand appearance?**

The reworking of our brand design is the first since we introduced the Lufthansa Technik logo over 20 years ago. A great deal has changed since then – in both our company and the entire aviation market. Today, as a company, it’s not enough to simply say: We have developed an innovative product, or a new service offering. Successful brands need to rethink and see things from the customer’s perspective: “This is your pain point, and we can offer a tailor-made solution for it.” We have been taking this approach on a company level for a long time already. Now we are finally ready to place this guiding principle of customer centricity at the center of our communication activities.

**What effects will this repositioning have?**

The central value that unifies every department at Lufthansa Technik is “excellence”. We are really proud to have such an excellent reputation in the industry. If something has been tested or developed by us, it is perceived as a quality seal. Our aim in redesigning the brand was to find a way to communicate in a manner that is similar to our excellent services. We also want to communicate in a language that makes it easier for our customers to grasp complex information. That’s why we have changed our tone from being primarily fact-oriented to one that is straightforward, powerful and bold.

**What are the next steps of this brand evolution?**

We are proceeding carefully and taking things step by step – after all, there is no sense in unnecessarily discarding material that is still highly usable. To begin with, we are focusing on updating our communication material. In concrete terms, this means adapting invitations, brochures, advertisements and other material to the new design principles. And the final step, which will also affect our colleagues’ everyday lives, is in the area of signage and design elements in the workshops.
A comprehensive heavy maintenance event is scheduled to take place soon. Specialized personnel will be needed to carry out the work packages as quickly as possible. How can an MRO facility fill the gap with the professionals they need for the task? And at the same time be assured of highly skilled workers with the right qualifications?

To provide a fast and transparent recruiting process for aircraft maintenance contractors, a team from Lufthansa Technik Sofia developed the digital marketplace StaffNOW. It brings aircraft maintenance contractors and MRO companies together and makes it easier for both sides to find the perfect match. As the first online platform of its kind, StaffNOW connects professionals and MRO companies in a fast, efficient and transparent way – saving time and effort by providing direct communication and standardized processes.
Self-marketing for contractors

The platform was launched in June 2019, initially for Lufthansa Technik Sofia, and proved to be very useful from the very beginning. Lufthansa Technik Sofia’s maintenance department loaded some requests that were visible to all registered professionals. “Not only the well-known contractors applied, but also contractors entirely unknown to us have been included and were accepted,” says Mariya Vinzens, who is the responsible Lufthansa Technik supervisor for the digital marketplace StaffNOW.

For contractors, StaffNOW works as a digital self-marketing tool. It offers a transparent overview of the industry’s open vacancies and inquiries. Users can register for free. After checking and activating by the StaffNOW service center they become visible to MRO companies and can receive offers. Their profiles with uploaded certifications and licenses and an availability calendar are always up to date. Contractors can choose the best options, are found by MRO companies and can manage their work and personal time more efficiently. “It is my pleasure to be a member of this site. For me it looks very organized,” says aircraft maintenance contractor Josip Ruskovacki.

Overcome manpower bottlenecks

For MRO companies, StaffNOW also offers many advantages and serves as a fast and efficient way to fill personnel capacity gaps. Present models for sourcing contractors with the right qualifications are often lengthy, complicated and costly. The platform provides a next-generation digital solution and gives the MRO companies access to a big pool of highly qualified professionals. MROs post requests for maintenance staff and their detailed capacity needs with all applicable criteria, such as period of assignment, trade, location, required level of experience and certification. Every inquiry is immediately linked to registered, pre-checked and available maintenance contractors.

The contracting agencies are the third party to benefit from StaffNOW. Once the platform was online and working, a process was set in motion: “The agencies started to compete with each other to attract more contractors and also advertised with reference to the StaffNOW platform. This development is quite interesting, as it shows the high recognition and acceptance of the platform in the market,” Mariya Vinzens is pleased to report. Kristiyan Lessev, who is working at the Staff Agency department at Lufthansa Technik, confirms this assessment: “For the short period of its operation the platform has collected a considerable number of non-destructive testing (NDT) specialists who are new for Lufthansa Technik. Such specialists have been quite difficult to find otherwise.”

Open for other MROs

As the next step, more base maintenance stations from the Lufthansa Technik network, such as Malta, Budapest and Shannon, are starting to execute their contractor searches via the StaffNOW platform.

“With the beginning of the high season in heavy base maintenance in October, all facilities of the Lufthansa Technik network will be using StaffNOW for their maintenance contractor needs,” says Mariya Vinzens. The StaffNOW team is already planning for the future. An upgrade with new features will make the platform fit for rapid development and even more convenient and beneficial for its growing number of users.

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All heavy base maintenance facilities of the Lufthansa Technik network will be using StaffNOW for their maintenance contractor needs.
We at Lufthansa Technik are continually working to increase the proportion of women working in engineering and technical careers. This is vitally necessary, and not only because of the growing global shortage of specialist personnel in the MRO industry, but also to facilitate increased internal recruitment of female managers in the medium and long term.

Winning women for technology

To this end, we seek to make early contact with girls and young women as their potential employer. In Germany, we therefore take part in the annual Girls’ Day. On that day, we invite around 140 female pupils, aged between 12 and 16, so they can figure out and get excited about possible apprenticeships in aeronautical engineering fields. Existing apprentices provide them with a first look at the day-to-day working life during training.

We have also been cooperating with selected universities for engineering disciplines in Germany for some years now. As part of this cooperation, we offer practical trainee programs for Bachelor and Master students and graduates. Our target is to achieve a female share of between 20 and 30 percent in each traineeship program. We have therefore established the rule that assessment centers are only held for these coveted places when there are sufficient female applicants. The men and women who qualify for these programs complete their practical placements at various Lufthansa Technik departments in Germany and abroad. In this way, they become familiar with a range of potential working areas in a relatively short time. They receive individual mentoring during this career development or establishment phase. With the mentor, they can discuss and reflect on professional development questions and career opportunities within the company. The mentor can also provide them with useful tips and network contacts.

Mentoring program for leadership roles

We also offer an extra mentoring program especially for women who are interested in taking on a leadership role. As a rule, most of the women in this program are between 25 and 35 years old. With a few exceptions, the mentors are leading men from top management. I place value on having men mentor women, because it provides a win-win situation for both parties: The women come to understand the perspective, approach, and strategies of the men, and the men come to understand those of the women. This enhances reflection and a leadership attitude. Because of different needs and different cultures, it is not possible to replicate this approach one-to-one at every Lufthansa Technik site in the world. But one thing is for sure: It is important in all of our activities that we pursue an approach that is strength-driven, not deficit-driven, and that we encourage and inspire women to make profitable use of their expertise and their social competence in the fascinating aviation industry. For their own benefit and, of course, for the benefit of the company.

In her editorial on the topic “women in aviation”, Astrid Neben, Head of Human Resources Management of Lufthansa Technik, argues why it is important to get young women interested in engineering topics and how the company supports them taking up management positions.

“We encourage and inspire women”
What is your current job position with Lufthansa Technik, and how did you get there?
I’m a Regional Sales Manager Asia Pacific, based in Singapore and responsible for Southeast Asia. My main markets are Singapore and Thailand. Before joining Lufthansa Technik, I was a sales manager at another company. When I saw the job offer for a Regional Sales Manager, I thought this would give me more insights into other product divisions – and so I applied. I’m happy with my position and the chances Lufthansa Technik is giving me.

What support and training did you get when starting the job?
I went to Frankfurt and Hamburg to meet my colleagues. They gave me a lot of knowledge about the products and how Lufthansa Technik works. Then I also officially attended product training and sales-related training modules. And recently I went to a “sales simulation” training course. All these kinds of skill training have helped me to equip myself for day-to-day business life.

What is your personal experience as a woman in aviation?
There is still a lot of male dominance in the aviation environment. There are definitely certain people who are keen to talk to men, because they believe aviation is a man’s job. But actually sometimes it is an advantage to be a woman, because the customers see a lot of men in the business and are happy to talk to a woman. I think a mixture of women and men is a very good combination. We often go to the customer together and then we are balanced.

I have been with the company for three years now and so far I have received all kinds of support – and I don’t feel a difference between me and the men. Lufthansa Technik has given me equal opportunity. Nevertheless, the whole culture of the industry could even be better by giving more opportunities to women for engineering positions as well, not only for me but in general. In this way we could prove to others – customers and other companies alike – that women can do this job just as well.
“Innovation 2.0 – bridging the digital and the physical worlds”

David Doyle, Vice President Corporate Strategy, Business Development and Innovation Management, explains Lufthansa Technik’s approach to innovation. Calling it Innovation 2.0, the company pushes the boundaries and combines new technologies and business models.

Your job title entails very diverse responsibilities. What does this mean for the company’s innovation approach?
David Doyle: Bringing technology innovation and business development together means bridging two very different ways of working. However, we don’t see this as a contradiction. Instead, it’s a challenge to identify the value between the two in terms of how we integrate cutting-edge technologies into our products and how we manage innovation to improve our MRO processes. What we are currently focusing on is bringing products to the market quicker and finding innovative ways to combine the digital and the physical worlds. We call this Innovation 2.0.

It seems that innovation at Lufthansa Technik today is something entirely different than what it used to be.
That’s true. Our approach has changed a lot over the past 20 years. When it comes to technology there was an inherent assumption that just because a product was a good idea technically, customers would benefit from it. And oftentimes they did. But today we spend a lot more time with the customer framing the problem before jumping into “solutioning”.
As innovation has become more central to our success and our strategy, we have become more focused on how we approach it. For Lufthansa Technik and our customers, we see three key areas where innovation plays a role: developing best-in-class MRO processes, which involves pairing new technologies and digital capability to increase competitiveness; developing new products and services, including digital fleet solutions based on state-of-the-art technologies; and longer-term research projects to explore cutting edge technologies and their future implementation in aviation and MRO.

How disruptive is the company’s approach to innovation today?
For one, we have embraced agile project management principles in our approach for individual products and our overall portfolio of innovation projects. This means that we produce digital or technical prototypes or minimum viable products very quickly. Ideas need to be tested very, very fast – and then we need to make a go/no-go decision without much delay.
We have had a lot of success in working with airlines and partners in co-creation processes to identify and address their pain points. We have a well-established “Boost Camp” event where we accelerate concepts to a go/no-go decision after four very intensive days which include expert coaching and challenging as well as customer interviews and feedback sessions.
The success of any innovation depends on the creativity, support and acceptance of the people behind the ideas. What about the people at Lufthansa Technik?

One of the true values of Lufthansa Technik is the intrinsic curiosity of the people who work here. We see great ideas coming from the workshops: How can we do something better? How can we be more efficient? There is a willingness within the organization to try out new things and find the best solutions for our customers. Our innovative strength comes from each of our product divisions. Each of them has set up great innovation teams and has deep expertise in various fields. In cooperation with our Corporate Innovation Management we thus have a genuine innovation community throughout the company.

We have a clear advantage in that we have the fleet of the Lufthansa Group. This enables us to road-test and showcase certain products on the aircraft in the Lufthansa fleet and offers us the bonus of being able to demonstrate the savings we are producing. And we do.

Digitalization seems to be the word of the day in today’s MRO. What potential do you see for digital technologies in the future?

In the future, we want to be the market leader in digital fleet solutions, the same way we are now the leader in independent MRO services. That means that we are investing heavily in developing new products for the AVIATAR suite. AVIATAR uses the strength and expertise of the entire Lufthansa Technik innovation community. The other challenge we are addressing within the innovation community at Lufthansa Technik is preparing our MRO processes to be “digital-ready”. Our vision is a seamless interface between the digital platforms and the physical fulfillment – with operational data being used to guide the repair process, and repair data being fed back to the predictive maintenance algorithms.

In which areas is Lufthansa Technik particularly active?

The areas of automation and the Internet of Things (IoT) have been particularly active in recent years. We have identified certain tasks, in particular inspection-related, which benefit from automation and the use of artificial intelligence. One example here is RoCCET – Robot Controlled Cockpit Electronics Testing –, the first robot in the world for fully automated tests of cockpit controls. It allows us to increase our throughput and eliminate the variability in the system.

Additive Manufacturing is a topic we have continued to work on, as we believe the long-term benefits are significant for MRO and fleet operators. We have been producing certain cabin parts and customized tools and see future opportunities in repair methodologies. Sustainability topics continue to dominate the public debate around aviation. In this area we have been active for a number of years with the focus on reducing fuel burn and noise. Advanced coatings, engine performance improvements and lightweight materials all contribute to these goals and can now be demonstrated using a new tool which we have developed.

While always shaping the industry as a market leader, Lufthansa Technik has never been a sole player. What role does research collaboration play today?

We are heavily involved with all the other companies in the Hamburg aviation cluster in terms of innovation, in particular in our shareholding in the ZAL (Center of Applied Aeronautical Research). This includes our cooperation with the German Research Center’s (DLR) Institute of Maintenance, Repair and Overhaul and the Technical University of Hamburg. We are also keen on the internationalization of innovation. For example, we are in discussion with institutes in China and South East Asia to establish research centers outside of Hamburg and Germany, with specific technologies and our specific capabilities.

Is there a risk of Lufthansa Technik losing sight of its roots in the future?

No, definitely not. We are and will continue to be a company that is based on technical expertise and one that is built on a history of great innovations. Innovation is a key element of our current business strategy. It’s our research and our innovative drive that essentially fuel our competitiveness and are key to our success.
Valuable exchange on digital topics

Lufthansa Technik’s second Digital Aircraft Forum took place in early July 2019 in Zurich, Switzerland. The participants’ great interest sparked the idea to found a community for ongoing exchanges on the subject of digitalization in aviation.

The Digital Aircraft Forum was filled with intensive discussions on the digitalization of aviation, especially in aircraft maintenance. Approximately 40 participants from 19 companies accepted an invitation from Robert Gaag, Vice President Corporate Sales Europe, Middle East and Africa of Lufthansa Technik, to attend the two-day forum. He said: “I’m very happy that so many of our customers came here to Zurich to share their knowledge on digital transformation with us. We learn a lot, and together we are in a better position to find solutions for the industry.”

After the host welcomed the participants, Peter Wojahn, Chief Technical Officer at Swiss International Air Lines, spoke about the digital transformation of his airline. He also discussed the supporting role that AVIATAR, Lufthansa Technik’s digital platform, played in this process.

AVIATAR and AVIATION DataHub

The presentation by Christian Ambiehl, Head of Maintenance at Wizz Air, was even more strongly focused on AVIATAR. Ambiehl offered the participants a live demonstration of the system using data from the Wizz Air fleet. He also emphasized the positive impact of the cooperation between Wizz Air and Lufthansa Technik on the development of the AVIATAR platform. Jan Stoevesand, one of the two Managing Directors of the independent data company AVIATION DataHub, which was initiated by Lufthansa Technik, posed the question “Who owns the data?” He particularly stressed the need for a neutral data platform for all market players.

The breaks between the presentations gave customers and Lufthansa Technik employees the chance for conversation and discussions. Networking and a lively exchange on the diverse topics also took place at the four workshops, which were even extended owing to the great interest of the participants. A panel discussion, moderated by Frank Martens, Senior Director Sales AVIATAR and Digital Products at Lufthansa Technik, featured many more questions and answers.

Two breakout sessions explored further opportunities of digitalization and ways of working together. “It is really interesting to see how other airlines set up their engineering and how their processes are working. We can learn from each other,” said Marcus Di Laurenzio from Swiss Technics.

After receiving much positive feedback from participants, Lufthansa Technik is now planning to create a community for ongoing exchanges on aircraft-related digital topics which could serve as a basis for further discussion independently of individual events.

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Technologies for the entire network

The concept of the Innovation Bay is proving successful. Future technologies for aircraft overhauls are tested and rolled out throughout the Lufthansa Technik base maintenance network. An innovation contest was conducted this year to identify more innovations at an even faster pace.

Since the introduction of the Innovation Bay at Lufthansa Technik’s heavy airframe maintenance location on Malta in 2018, a steadily increasing number of technologies for use in aircraft overhauls are being identified and tested directly in the hangars of Lufthansa Technik’s base maintenance locations. Technologies that have stood the test both on the shop floor and among the employees are integrated into the work process at the earliest opportunity and rolled out as widely as possible throughout the overhaul network.

Mobile 3D scanner detects damage to the aircraft structure

One innovative technology that was tried and tested on Malta and has already been rolled out to the entire Lufthansa Technik base maintenance network is a 3D scanner produced by the German company 8tree. The mobile system makes it possible to take detailed measurements of structural damage to the aircraft.

“The scanner proved to be a success because it’s easy to operate and provides immediate optical feedback. Both of those factors also convinced our colleagues on site,” says Moritz Schmidt, Process Improvement Expert at Base Maintenance Services.

Using the new scanner not only reduces the workload for employees, it also cuts the measuring time by around 80 percent compared to conventional methods. In addition to Malta, it is already deployed at the facilities in Puerto Rico, Shannon, Budapest and Sofia as well as by the Fleet Services and VIP & Special Mission Aircraft Services divisions.

3D printer for innovative tools

In the future, mechanics will be encouraged to replace worn-out tools on site, creating unavailable spare parts or product enhancements for their tools in line with industry standards and producing them with a 3D printer. “This is possible thanks to a 3D filament printer from Ultimaker, the first of its kind to be industrialized. The material we use is the new durable and highly stable Tough PLA plastic, which allows us to manufacture a landing gear axle thread protector, for example, so that the axle and landing gear thread can be shielded during landing gear overhauls,” says Jan-Peter Noll, Strategy & Innovation Manager at Base Maintenance Services in Hamburg.

The printer was thoroughly tested at the Innovation Bay in Malta in cooperation with the Lufthansa Technik Additive Manufacturing (AM) Center in Hamburg. The idea has been received so well that the specially created database already contains more than 100 suggestions. The base maintenance locations are currently assessing different scenarios for a network-wide roll out of the technology.

Semi-automated aircraft jacking

One of the first projects tackled in the Innovation Bay Malta is semi-automatic jacking. The system is designed to partially automate jacking and de-jacking in the hangar. Bay Manager Donald Tabone explains: “The responsible jacking coordinator checks the position of the aircraft on his tablet throughout the whole
process and is in full control of what is happening. The system is designed to automatically shut down the power in the event of an imbalance, nevertheless the jacking coordinator can also shut the system down through a series of safety switches. This will take the safety during jacking and de-jacking operations to a different dimension.” Project manager Jan-Peter Noll underlines the benefits: “We are able to jack and lower an aircraft twice as quickly and much more safely while saving manpower at the same time. The technology is being tested in Malta as it would enable us to work much more efficiently.”

In 2019, the Innovation Bay in Malta also hosted a new innovation contest called StartUp Challenge. The aim is to identify suitable innovations from all areas relevant to aircraft overhauls even faster, validate them together with Lufthansa Technik’s production experts and ideally roll them out quickly throughout the MRO provider’s base maintenance network. The extended Innovation Bay concept is supposed to help improve work processes even further. What’s more, “it makes an important contribution to shortening the layovers of our customer’s aircraft,” says Jan-Peter Noll.

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Keeping your engines flying – in Asia Pacific

Under the umbrella of Mobile Engine Services, the missions of the Airline Support Team AST® Engines are the fastest and most efficient way to repair an engine. In three workshops in Asia Pacific, Lufthansa Technik presented its expertise to customers in the region.

Lufthansa Technik’s AST® Engines services help to avoid costly, time-consuming full load shop visits as well as additional expenses for spare engines and shipping. Depending on the complexity and level of the repair, they range from on-wing repairs with the engine still mounted on the aircraft, on-site repairs which require the removal of the engine at the customer’s facility, to more complex repairs performed at a Repair Station in the region. In the Asia Pacific region, Lufthansa Technik Shenzhen currently offers these services with a continually expanding portfolio.

Growing market demand and many customer requests led to the idea of dedicated workshops on the topic of AST® repairs and the Repair Station network. “We did not only want to increase customer understanding, but also aimed to create a platform where customers can meet the experts behind the product. We intended to facilitate a direct discussion and the exchange of ideas for product improvement,” says Martin Fuerl, Head of Product Sales Engines Asia Pacific.

Focus on pain points

To take into account the different local market needs, the workshops took place at three locations: in Bangkok for South East Asia, in Seoul for the Korean market and in Shenzhen for China. For an open exchange across all functions, Lufthansa Technik representatives from Sales and Customer Service, the Engine Operations Center and Engineering participated. A total of 60 representatives of some two dozen airlines and lessors accepted the invitation. The feedback of one AST® Engines customer advantages

- No expenses for engine shipping
- No expenses for spare engine
- No engine change necessary
- No shop visit
- Tailor-made smart workscoping
- Reduced costs per flight hour
- Integration of service TAT into scheduled aircraft downtime

About 60 airline representatives joined the workshops at three locations to learn more about the AST® services in the Asia Pacific region.
participant – “Now we understand how much Lufthansa Technik can do” – is testimony to a workshop agenda packed with information that could literally be seen and felt.

The customers listened to an introduction about the AST® services and the worldwide Repair Station network and learned more about the major benefits. The main AST® repairs performed at Lufthansa Technik Shenzhen were explained in detail. Afterwards, the participants joined small-grouped market place discussions with the AST® experts. Theoretical information and discussions were supplemented by an interactive highlight: A virtual reality presentation took customers into the world of AST®, letting them witness and even perform an AST® repair within the virtual environment.

In Shenzhen, a shop tour of the Lufthansa Technik facility followed. During an informal get-together for dinner the lively discussion continued.

“These events have shown there is an obvious interest in getting to know Lufthansa Technik and the Engine Services better,” Martin Fuerl concludes. In particular, Lufthansa Technik was able to demonstrate its focus on the major ‘pain points’ in engine maintenance and show that Mobile Engine Services can offer sustainable solutions. Further, valuable insights from the airline and lessor community were shared, which allows further development of suitable products to fulfill future customer requirements.

The workshops facilitated direct discussions and the exchange of ideas for product improvements.

The training portfolio includes EASA Part 66 Basic Training Programs and Aircraft Type Practical Training for Boeing 737NG, 757, 767, 787 and Airbus A320 aircraft as well as a Bachelor of Science degree in Aircraft Maintenance and Airworthiness Engineering in conjunction with Limerick Institute of Technology. In addition, they also offer a range of specialist courses such as Electrical Hand Skills, Continuation Training in Human Factors, Fuel Tank Safety and EWIS (Electrical Wiring Interconnection System), a web-based training solution for maintenance engineers.

The EASA Part 147-authorized training school is located at Lufthansa Technik Shannon and has full access to the EASA Part 145 facility. Skilled trainers with decades of hands-on experience in the industry teach all courses. The academy’s flexible teaching approaches, modern new workshops and classrooms ensure a high level of training.

The training academy has been in operation since 1990 and was one of the world’s first training facilities to receive EASA Part 147 certification, an internationally recognized standard. Over 2,500 graduates are successfully working in the maintenance industry with many of their alumni in leadership roles worldwide. In 2014, the school also won the “Aviation Industry Award” for Aviation Training.

**Top-class maintenance training**

**Expert training with hands-on experience:**
The Lufthansa Technik Shannon Aviation Training Academy in Ireland is offering a range of courses for aircraft maintenance professionals.

By solving technical problems without a major shop visit, Mobile Engine Services products provide a substantial economic advantage.

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“From strength to strength”

Zang Thio is Lufthansa Technik’s Senior Director Corporate Sales Southeast Asia and Indian subcontinent. Connection talked to him about Lufthansa Technik’s position and development in this region, where aviation and the associated MRO activities are experiencing the strongest growth worldwide.

What is the key characteristic of your sales region?
Zang Thio: One of the market’s key features is its diversity. The region we cover out of the Singapore office is geographically diverse with equally diverse cultures and traditions. This leads to extremely varying customer behaviors and buying mentalities. This is why our strategy over the past years has been to establish local market experts in our key growth areas, with local presence traditionally in a huge growth market like India. We will be establishing our sales presence in Vietnam as well, where we see huge growth potentials combined with the Indochina market. With aircraft orders almost as large as the active fleet in the region, this phenomenal growth offers tremendous opportunities for a company with a wide-ranging portfolio like Lufthansa Technik.

How do you approach these opportunities?
Ultimately, we hope to bring value to the operational stability of the airlines whilst at the same time being extremely aware of the increasing cost pressures on operators. To this end, we focus on value-added differentiators that we combine with our traditional MRO offerings. Our Mobile Engine Services (see page 24) is a case in point. By having highly qualified mechanics available at our global network, we are able to perform the repair on aircraft engines either on wing or at one of our Repair Stations close to the customer. This not only reduces the burden on having to put the engine through a full-blown shop event, it also reduces the down time for the customer. Many of our customers in the Philippines, Vietnam, Thailand and India have benefited from this and our Mobile Engine Services business is definitely gaining momentum in the region. Another example is AVIATAR, which we have positioned as an independent and open digital platform that brings valued partners together in order to best analyze and mine the multitude of data that is generated by the growing fleet of aircraft forecasted to be in operation worldwide. We truly believe that the future is digital. AVIATAR will play a huge role towards increasing the efficiency and safety of airline operations while optimizing costs, ultimately resulting in enhanced fleet availability with reduced flight delays and cancellations.

Can you give further examples?
We believe that passenger experience is another area of focus by the airlines as they compete on brand value, capacity, passenger loyalty, etc. Leveraging our expertise in cabin modification and retrofits, we offer unique solutions that support airlines in creating that differentiating customer experience. For example, we have a high-density cabin solution that can help airlines in increasing seat capacity on the A320 fleet. We believe that this can maximize earnings and fleet flexibility in a highly congested market such as Southeast Asia and India. We are also able to equip a customer’s fleet with high-end connectivity solutions, which – as frequent travelers can appreciate – is also a key element in defining passenger experience.
The answer is a resounding yes! In May, we announced our expanded cooperation with Honeywell making us a licensed component repair center and exclusive global asset service provider for the A350 with repair services now in Asia Pacific as well. We will be establishing significant local capabilities at Lufthansa Technik Shenzhen over the next one and a half years so that our Asian customers can have better access to the support on the Honeywell key components on the A350. Looking at the next generation of aircraft engines, we have definitely positioned ourselves well. We are part of the CFM MRO network on the LEAP engines and have established overhaul capability for the LEAP-1A in Hamburg, with the LEAP-1B to follow. With our joint venture partner MTU, we will also be ramping up on our Pratt & Whitney GTF capability at EME Aero in Poland. As far as the larger engines go, we have established the joint venture XEOS with GE Aviation that handles the GEnx-2B engines today. We will be establishing GE9X capability at XEOS as well. As far as new airframes go, we currently have approval to perform base maintenance of the 787 and A350 aircraft types in Dublin and Malta respectively. There are plans to ramp up in Asia as well in order to bring the capability closer to our Asian operators.

How has the company’s presence in the region developed?
Partners who know us well will remember that we opened our sales office in Singapore more than 20 years ago, but only with a small sales force. This has grown tremendously into a co-located team with functions spanning corporate sales, product and technical sales across various business units and subsidiaries, as well as various supporting corporate functions such as finance, sales controlling, area development, marketing and human resources. In doing so, we have brought more empowerment to the team by establishing the functions and associated decision-making in the area, which translates into better customer engagement, quicker response, trust and stronger relationships. We have also expanded our footprint significantly over the years. We firmly believe that this is essential for our continued growth in the area. Lufthansa Technik Philippines has just announced an investment of 40 million US dollars into hangar expansions that will add around ten percent to its existing workforce. In addition to this, we are still in discussion with potential partners in the Southeast Asia region on a narrowbody base maintenance platform. We have had a limitation of slots we can offer to the market in recent years and these measures will therefore position us better to take on the growing demands of base maintenance activities from the Asia Pacific region. In addition to the A350 component capabilities mentioned earlier, Lufthansa Technik Shenzhen will also be expanding their portfolio to include some of Meggitt’s components as part of a long-term partnership and a joint commitment to the Asia Pacific market with expanded footprint. As a global player with German roots, but acting as a true local and regional player, I am confident that we will continue to extend our footprint in line with the growth of the aviation market.
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
### 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/Base Maintenance
  - Component Services
  - Engine Services: RB211-535
  - 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
  - Engine Services: GE90
  - Completion

- **777X**
  - In preparation

- **787**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: Trend 1000
  - Completion

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

### Regionals

- **De Havilland Dash 8-400**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: PW100, PW150

- **Bombardier CRJ**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: CF34-3, -8

- **Embraer**
  - 135/145, 170/175, 190/195
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: CF34-8, -10

### Business jets

- **Airbus Corporate Jets**
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: CFM56-5A, -5B; V2500-A5
  - Completion

- **Bombardier**
  - Challenger, Learjet, Global Express
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: CF34-3, -8

- **Embraer**
  - Legacy, Lineage.
  - Line Maintenance
  - Base Maintenance
  - Component Services
  - Engine Services: CF34-8, -10
Let’s talk about solutions

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At Lufthansa Technik, excellence is part of our corporate DNA. For more than six decades we have been providing the technology that keeps fleets flying and turns a good aircraft into a great one. Today, we are proud that our company’s name is synonymous with high quality and in-depth knowledge. And we continue to shape the aviation industry – by embracing new challenges and exceeding our customers’ expectations.

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