

Inspire

GATE'S MAGAZINE ON INNOVATIVE & SUSTAINABLE AIRPORT TECHNOLOGIES

Achieving Net Zero by 2035

Interview with Jan Eike Blohme-Hardegen and Julian Klaaßen, Hamburg Airport

Path to Climate Neutrality

Interview with Oliver Luksic, German Federal Ministry of Digital Affairs and Transport

Sustainable Mobility at the Airport

Interview with Dr. Christoph Ebert, E.ON Drive



Add value.
Inspire trust.



Where do your employees
learn today what will benefit
them tomorrow?
With us.

tuvsud.com/akademie



TUV®

Major Changes Are Driving Our Industry

Dear Reader,

Has artificial intelligence already made your day-to-day work easier? In this new issue of GATE Inspire, GATE, The Airport Technology Network, has dispensed with the use of chatbots and done its own research into what major changes are driving our industry.

AI is certainly one of them, as it is also helping to optimize airport processes and better manage passenger flows. Tailored information and personalized services, for example, increase traveler convenience. Many GATE members are already using these technologies to ensure a seamless customer journey. But there are other trends that are revolutionizing operations: Automation has also seen rapid development in recent years - from self-service check-in to automated baggage handling systems and robotic cleaning services. Operations have become more efficient, which in turn also has a positive impact on achieving ambitious climate targets. In order to make the aviation industry more sustainable, electrification is also making its way into all areas of the airport. In particular, the fleet on the apron is being converted to alternative vehicles.

To learn more about the most innovative developments in the industry, the editorial team entered into dialog with specialists in their field. GATE spoke with leading drive manufacturers about energy efficiency and exchanged ideas with E.ON Drive about the charging infrastructure of the future. We were also interested in how Hamburg Airport is paving the way for net zero. Parliamentary State Secretary Oliver Luksic revealed to us in an interview how the German Federal Ministry of Digital Affairs and Transport is supporting aviation's climate goals.

We hope you enjoy reading this issue and that it will provide you with new inspiration for your business.

Yours sincerely
Kay Bärenfänger

Contents

03 EDITORIAL
Major Changes Are Driving Our Industry

08

HAMBURG AIRPORT
Interview with Jan Eike Blohme-Hardeggen
and Julian Klaaßen



PHOTOS: HAMBURG AIRPORT, ISTOCK, OLIVER LUKSIC



14 SEW-EURODRIVE
GETRIEBEBAU NORD
Sustainable Technologies
in Baggage Handling

18

LENZE
Take-off for Digital
Transformation

22

MINISTRY OF DIGITAL
AFFAIRS AND TRANSPORT
Oliver Luksic About
Climate Neutral Airports

26 DYNELL
Electrification of
the Airport Apron





30

E.ON DRIVE
Dr. Christoph Ebert on Sustainable Mobility



42

SAUDI ARABIA
Saudi Arabia's Future Potential

- 34** PSI LOGISTICS/AAT AUTOMATION
Complete Automation in Baggage Handling
- 38** TRADE SHOWS
Stay Connected Worldwide
- 40** GATE FUTURE
The Innovation Forum of the Airport Industry

- 46** EVENTS 2024
Meet GATE at Exhibitions and Conferences
- 48** MEMBERSHIP
Join GATE!

PHOTOS: E.ON DRIVE, I STOCK

IMPRINT

PUBLISHER & CONTACT

GATE
 Fachverband German Airport
 Technology & Equipment e.V.
 Hermannstr. 13
 D-20095 Hamburg
 Germany
 www.gate-alliance.com
 T +49 (40) 64 79 74 03

EDITORS

Jens Reinhard (responsible)
 Miriam Schönrock
 Kevin Fischer

LAYOUT

Verena Fuchs

FINAL ARTWORK

Martina Drignat

ADVERTS

GATE Alliance GmbH
 Hermannstr. 13
 D-20095 Hamburg

PRINTING HOUSE

QUBUS media GmbH
 Beckstr. 10
 D-30457 Hanover
 Germany

Reprints, including excerpts,
 only with the written permission
 of the publisher.

GATE Inspire is published once
 a year. Print run: 3,000 copies
 Distribution: Display at airport
 exhibitions and congresses,
 mailing to GATE members and
 airport managers

„Over the Past Decades, We Have Reduced Our Carbon Footprint by Almost 80%.“

INTERVIEW WITH JAN EIKE BLOHME-HARDEGEN, HEAD OF THE ENVIRONMENT DEPARTMENT, AND JULIAN KLAABEN, HIS DEPUTY AND PROJECT MANAGER NET ZERO 2035 AT HAMBURG AIRPORT



Hamburg Airport is raising awareness of green alternatives across the industry. The airport's commitment doesn't end on the premises. Jan Eike Blohme-Hardegen, Head of the Environment Department, and Julian Klaaßen, his deputy and Project Manager Net Zero 2035, talk about the concrete measures in an interview with with Kevin Fischer, Head of Innovation at GATE.

Today we focus on the environmental aspect and your net zero strategy. Hamburg Airport has been working on sustainability for a long time and has ambitious goals. Can you elaborate on what you have done in recent years?

Jan Eike Blohme-Hardegen: Since our Airport Carbon Accreditation baseline year in 2009, we have significantly reduced our carbon footprint through measures such as fleet conversion, new HVAC systems, green power purchases, and efficiency projects. We also introduced APU restrictions for aircraft to achieve additional emissions savings. We also offset our internal business travel through reforestation activities, and are taking several approaches to comprehensively address the issue of sustainability.

Julian Klaaßen: Compared to other companies, we have been addressing environmental and sustainability issues for 30 years. Initially, we focused on protecting employees on the apron. We took measures to reduce noise and pollutant emissions at an early stage. Our commitment has evolved and intensified over time.

“Net Zero actually means achieving a net zero of CO₂ emissions without using offset certificates.”

Julian Klaaßen,
Project Manager Net Zero 2035



Through your measures, you have managed to be CO₂ neutral since 2021. What exactly does that mean, and what is the difference between CO₂ neutral and net zero? You have the goal of achieving net zero by 2035, 15 years ahead of the industry.

Julian Klaaßen: Being CO₂ neutral means that we have achieved Level 3 plus according to the ACA (Airport Carbon Accreditation) accreditation mechanism. This refers to the airport’s direct (Scope 1) and indirect (Scope 2) emissions. Over the past decades, we have reduced our carbon footprint by almost 80%. Since 2021, we have been offsetting the remaining residual emissions that are currently still unavoidable by acquiring high-quality offset certificates from international projects. We achieve CO₂ neutrality by offsetting our CO₂ emissions.

An actual net zero means achieving a net zero of CO₂ emissions without using offset certificates. To implement this goal by 2035, we must continue to turn key screws. This includes continuously reducing our consumption and using new technologies. One example is the work

on hydrogen fleets to switch to zero-emission fuels. However, some technologies are not yet mature enough to address certain challenges. For example, technology to capture CO₂ from the air is not yet sufficiently developed to be effective on a large scale. We must continue to drive research and development to continue on the path to effective net zero emissions.

Carbon offset certificates have been criticised as a measure of greenwashing. What are your thoughts about that?

Julian Klaaßen: In terms of offset certificates, it is important to use high-quality certificates. We have chosen certificates that meet at least the gold standard and support projects that we have personally verified.

One example is a deforestation stop project in Zambia, which combats illegal logging and works to preserve the forest. This not only helps nature, but also the climate. Such projects are only possible if financial incentives are created so that local people realize that preserving the forest brings more benefits than deforestation.

On the subject of greenwashing: We are not buying our way out, but only offsetting the emissions that cannot be reduced at the present time. Our goal is to develop technologies and find ways to reduce or substitute these emissions to ultimately get to net zero, and our ambitious net zero goal demonstrates this commitment. For us, we would consider it greenwashing to be satisfied with our current status. Offsetting is an intermediate step that we use to make continuous progress.

What other concrete measures are you taking to further reduce your carbon footprint?

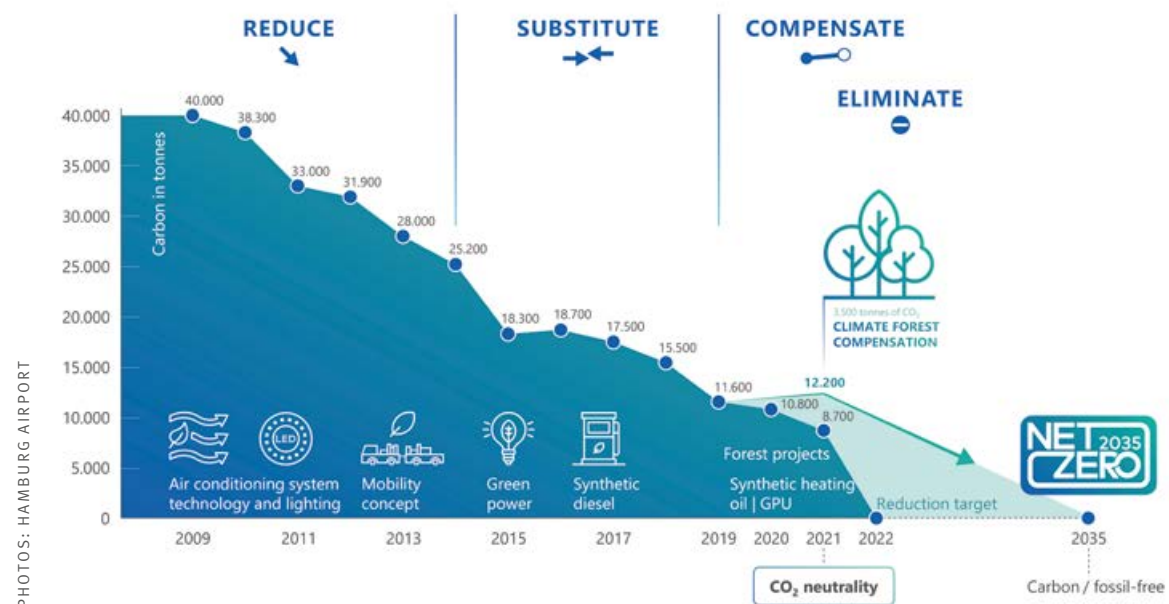
Jan Eike Blohme-Hardeggen: On the one hand, we have implemented the APU ban and also converted the power and air-conditioning supply on the outboard positions from diesel-powered gensets to shore power. This means that the aircraft is supplied with green electricity, and that is the path we must take in the future. Another concrete example is the heat supply for the airport, which accounts for 85% of our emissions. We are currently in the planning phase for our own

wind power project in Kaltenkirchen with up to 36 megawatts of electrical output and six windmills. These windmills are enough to cover all our energy needs, i.e. heat and electricity. We can even still run electrolysis and produce hydrogen for ground applications. We currently expect to have the wind turbines in operation in 2027/28.

Julian Klaaßen: In addition, we switched our fleet to paraffinic diesel back in 2016. And in May, the management approved the new procurement guidelines for vehicles, which stipulate that only vehicles with zero-emission drives will be procured - and only in very justified individual cases will synthetic diesel be used at all.

Sustainability is a very strategic issue at Hamburg Airport. To what extent do sustainability aspects flow into the airport’s overall strategic planning when making decisions?

Jan Eike Blohme-Hardeggen: Each project is ranked according to its net zero usefulness. If the project has net zero benefits, then it slides higher in the ranking than projects that are net zero detrimental. It is therefore much easier to



PHOTOS: HAMBURG AIRPORT



Bird's eye view of Hamburg Airport



WE SEE THIS AS OUR TASK: TO MOVE FORWARD AS A CATALYST, AS A FIELD OF EXPERIMENTATION, AND ALSO AS A PIONEER AIRPORT IN ORDER TO MAKE AVIATION MORE SUSTAINABLE IN THE FUTURE.

JULIAN KLAABEN,
PROJECT MANAGER NET ZERO 2035

implement projects that bear the net zero stamp as it can run through our internal process chains more quickly. Every project at the airport is put to the test: 'Does it jeopardize our 2035 target achievement, does it serve the target achievement, or does it have no influence at all?'

Now I would like to briefly touch on the subject of baggage handling systems (BHS). There are a lot of motors and inverters that have to be run to get the passengers' baggage from check-in to the aircraft. Now the BHS are not known for saving a lot of power, but rather for being power hogs. Can you explain to what extent the BHS is an issue in your sustainability considerations?

Julian Klaaben: We installed energy-saving motors in Terminal 2 in 2020. In addition, a project is being set up for 2027 in Terminal 1 with the aim of converting the BHS and installing appropriate energy-saving motors and inverters there. The BHS IT is also a part of this project, as it is a real power guzzler. The aim is to make the servers more efficient and reduce energy consumption.

From our conversation, one can deduce that Hamburg Airport has done some pioneering work in Germany through its already existing CO2 neutrality. Do you consider yourselves pioneers for the German or European airport market? And how do you intend to use this pioneering role?

Jan Eike Blohme-Hardegen: We really do see ourselves in a pioneering role in Europe. There is a lot of knowledge in our projects. We are also happy to pass on this knowledge, but it must also be said that every airport is different and has its own specifications. Therefore, it would be presumptuous for us to explain to all other airports how sustainability works. But we can show what is possible through best practices and are happy to provide advice.

Julian Klaaben: In recent months, we have also initiated many research projects and entered into cooperative ventures with international partners, primarily to advance the topic of sustainable aviation and SAF, whether through synthetic kerosene or flying with hydrogen. In this context, we are using our pioneering role and intend to expand it further with the help of our partners. This is the only way we can keep the aviation industry alive. We see this as our task: to move forward as a catalyst, as a field of experimentation, and also as a pioneer airport in order to make aviation more sustainable in the future.

What other appeals would you like to make to the industry?

Jan Eike Blohme-Hardegen: The issue of technology openness is a very, very big wish. In Germany, this needs to be more firmly anchored in the general consciousness. It's also important not to always focus on just one topic - battery electric vehicles, for example. They're good in many applications, but they're not the universal savior. It needs to be better communicated that it's all about the mix.



Hamburg Airport
www.hamburg-airport.de

Efficiency, Innovation and Future Prospects

SUSTAINABLE TECHNOLOGIES IN BAGGAGE HANDLING

Baggage handling systems are an integral part of airport infrastructure and play a critical role in operations. In many cases, however, these systems have high energy consumption due not only to aging equipment with inefficient mechanics and drives, but also to the lack of options for shutting down sections of the line on a section-by-section basis.

In many cases, asynchronous motors are still used, which do not allow variable speed adjustment to the volume of baggage. This leads to a considerable energy requirement for baggage handling. The utilization of these drive systems is often less than 50% of the rated power, which in turn reduces efficiency, while the drives are usually significantly oversized.

The advantages of sustainable technologies

The ongoing development and deployment of sustainable technologies, particularly in areas such as baggage handling, is heavily influenced by efficiency issues and breakthrough innovations. A good example of this is a document from CEMEP (The European Committee of Manufacturers of Electrical Machines and Power

Electronics), which states that variable speed systems have the potential to reduce energy consumption by an impressive 40%. This figure becomes even more impressive when considering the benefits of permanent magnet synchronous motor. Legislation requires that motors meet at least efficiency class IE3, but advanced AC models already exceed common efficiency classes such as IE5.



By comparison, asynchronous motors can currently only boast energy efficiency class IE4. In addition, the advanced technology enables the integration of permanent magnet synchronous motor into the gearbox housing. The reduced need for ball bearings and seals further increases efficiency. The permanent magnet synchronous motor, especially in part-load operation, together with the

innovative decentralized frequency inverter technology, offer significant advantages in terms of efficiency and controllability.

Compared to conventional drive solutions, sustainable technologies are characterized by a number of advantages:

- A significant reduction in energy consumption
- Higher efficiency, especially

in partial load speed operation

- Significant improvement in both total cost of ownership (TCO) and return on investment (ROI)
- Opportunities for more cost-effective maintenance and repair
- A significant reduction in environmental impact



- 1 Decentralized and high-efficient mechatronic drive system in a typical arrangement
- 2 Typical conveyor system with decentrally installed frequency inverters as a highly efficient drive solution
- 3 Efficiency diagram in the partial load and speed range - upper curve = permanent magnet motors in IE5, lower curve= typical asynchronous motors in IE3
- 4 Guest author: Daniel Geider, Industry Segment & Account Manager at SEW-EURODRIVE
- 5 Guest author: Marcel Grunenberg, Industry Sector Management at NORD DRIVESYSTEMS



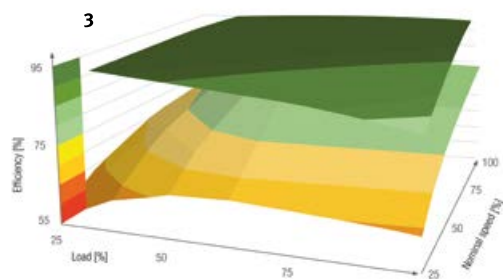
The challenges of integrating sustainable technologies

Integrating sustainable technologies into baggage handling systems is not without its challenges.

Often, the initial investment for these state-of-the-art technologies is higher than for conventional alternatives.

This forces airport operators to rethink their approach: instead of focusing primarily on the initial investment, they need to paint a broader picture and also consider the long-term operating costs. This is where the undeniable advantage of sustaina-

ble technologies, which can lead to significant cost savings over their entire life cycle, becomes apparent. A focus on “total cost of ownership” (TCO)



and close collaboration with integrators, conveyor, belt and drive manufacturers is becoming increasingly critical to eliminate oversizing and unnecessary safety factors. Equally important is an intensive and collaborative partnership

between airport operators and technology providers. To achieve a balanced compromise between variant reduction and energy efficiency, a harmonious, synchronized approach by all parties involved, from the component manufacturer to the end customer, is essential.

The future of baggage handling

When we take a long-term look into the future, the potential and positive impact of these sustainable technologies becomes clear. They have the potential to drastically reduce the carbon footprint of airport operators. This is particularly important at a time when the aviation industry is increasingly the focus of environmental discussions. By improving

PHOTOS: SEW-EURODRIVE, NORD DRIVESYSTEMS

their energy footprint, airport operators can not only benefit from government subsidies and grants, but also take on a pioneering role in sustainability. This pioneer status can give them strategic advantages, especially when it comes to expanding and extending their presence and sphere of influence.

Conclusion

In recent years, it has become clear that baggage handling technology is at a crucial turning point where change is not only necessary, but inevitable. We live in a time when sustainability is no longer just an idea, but a necessity and an obligation to the environment and future generations. As im-

portant hubs of global mobility and travel, airports not only have a special responsibility here, but also a unique opportunity to play a pioneering role. By using new, environmentally friendly technologies, they can set standards and show how economy and ecology can be reconciled.

The potential inherent in such technological innovations is enormous: In addition to significant cost savings through efficiency gains, airports can also benefit from an image boost by positioning themselves as pioneers in sustainability. This, in turn, can become an important competitive advantage at a time when awareness of environmentally conscious behavior is constantly growing.

It is therefore in the interest of airport operators not only to passively observe these developments, but to actively take the initiative and invest in technologies that pave the way to a greener and more sustainable future.



DRIVESYSTEMS

Getriebbau NORD GmbH & Co. KG
www.nord.com



SEW-EURODRIVE GmbH & Co KG
www.sew-eurodrive.de

Take-off for Digital Transformation

HOW DATA INCREASES THE SUSTAINABILITY OF AIRPORTS

In modern baggage handling systems, data on operating and system conditions has been collected, visualized via dashboards, monitored and evaluated for many years. This ensures that a system operates as error-free as possible. However, the “new raw material” of data can do much more and, in addition to plant transparency, also offers answers to the increasing demands on sustainability. With the right data, airports can be operated in a more resource-efficient and environmentally friendly way.

“The ongoing digitalization and networking of drive components in baggage handling systems offers a wide range of opportunities for airports to achieve their sustainability goals. Unfortunately, many operators of baggage handling systems still limit themselves to exchanging individual process data to control motion. This means they are far from exploiting the actual potential of digitalization and networking,” says Tim-Oliver Ricke, Global Industry Manager for Material Handling & Logistics at Lenze SE.

The use of state-of-the-art networked drive components is a basic prerequisite for digitalization. They already have the necessary interfaces and provide standardized data to IIoT platforms or higher-level edge systems. With the operating data analyzed in real time, energy consumption and recovery can be recorded very precisely and compared with the theoretical design data. An intended side effect: the analysis reveals energetically oversized components of a baggage handling system. This is because the need for safety on the part of the parties involved in the design of a system still all too often leads to a significant oversizing of gear motors and

frequency inverters and thus to a waste of energy and resources. As an example, a 5.5 kW frequency inverter is selected instead of a 4 kW model, which leads to higher losses accordingly. The same applies to gear motors, as the torques available on the market are subject to power stages, resulting in power-independent losses in the gearbox.

The importance of digitizing drive components for baggage handling systems

The electronics installed in frequency inverters of the latest generation make it possible to record the motor current, which is responsible for the torque and consequently the movement, with high resolution. This is essential as a basis for further data analysis. Now artificial intelligence (AI) comes into play: Based on algorithms, anomalies in the operating behavior of each individual conveyor belt as well as over the entire conveyor line can be detected on the basis of the motor current. The combination of frequency inverter and gear motor acts as a high-resolution sensor for anomalies in the conveyor line, providing raw data. Initial applications in the field confirm that AI algorithms are a promising approach for detecting anomalies in the system caused by wear and damage to ball bearings as well as geared parts of the transmission.

“Unfortunately, many players in the market are still very reluctant to use these modern technologies, which are still being tested. However, this means they are missing out on the opportunity to benefit comprehensively from digitalization at an early stage. Especially since the application is becoming easier with the right partners and tools,” Ricke is certain.

In the past, intelligent fault detection could only be achieved using large volumes of data - so-called Big Data - which had to be obtained from

practical applications at great expense and constantly evaluated. However, the wear and tear of components that can lead to an unexpected standstill of the baggage conveyor system does not usually occur abruptly, but develops over time. Accordingly, less data is needed, but it must be of excellent quality and granularity. Small data is the colloquial term for this high-quality data. In order to reliably implement preventive fault detection and thus achieve smart data and a digital twin, more time-intensive learning is still required with today's technology. This is because each application has its own mechanical properties and a simple generalization is not (yet) possible. However, it seems to be within reach. Enrichment of the algorithm for preventive error detection with existing sensor technology, which is available anyway for smooth control of the baggage flow, is therefore quite conceivable.



Connection and information exchange currently still require an increased integration effort, since there is still no generally valid organized data exchange. However, the Asset Administration Shell (AAS) is emerging as a suitable model. As the basis for the so-called digital twin, it enables and standardizes access

to context information of an asset. It contains features on specific functionalities and technical aspects of a product - standardized and semantically unambiguously modeled and stored.

In addition, in the future it will provide information on the Product Carbon Footprint (PCF), which gives users information on the total greenhouse emissions a product causes over the various phases of its lifecycle. "In this way, the ASS will make a significant contribution to sustainability and also to the legal security of the plant operator," says Ricke, looking to the future.

The role of recycling and sustainable materials

The role of recycling and the use of sustainable materials was confirmed by the international community in 1998 under the Greenhouse Gas Protocol (GHG) as an important element in the fight against climate change. A sustainable and consistent circular economy can reduce indirect emissions along the entire value chain by significantly reducing emissions generated during raw material extraction, transportation and processing. The potential and the need for action become clear when one considers the current recycling rates of 17% for copper, 40% for aluminum and less than 1% for rare earths.

Rare earths, which are mainly exported from China, are contained in high-performance magnets in the form of neodymium and dysprosium. In electric motors, neodymium enables a maximally strong magnetic field in a minimum of space, while dysprosium improves the thermal properties. Consequently, they are indispensable components for high-performance motors. However, it is currently difficult to return them



Tim-Oliver Ricke Global Industry Manager for Material Handling & Logistics at Lenze SE

to the recycling economy because recycling on an industrial scale is only possible to a limited extent. Recyclers simply lack information on the composition of the components. This problem will be further worsened in the coming years due to the increasing demand for electromobility. "The demand for rare earths will increase tenfold in the next few decades," Ricke says. "To counteract this, the European Union is working on new regulatory requirements under the Ecodesign for Sustainable Product Regulation (ESPR), which will require a full declaration of the product carbon footprint (PCF). Industry will likely be required to provide product information in the form of a Digital Product Passport (DPP)." If policymakers have their way, the DPP will contain information about a product's components, materials and chemicals, repairability, spare parts or proper disposal.

Conclusion

The industry has recognized the value of a standardized and organized exchange of information along the value chain and implemented it in ASS. However, this model will only be successful if all stakeholders participate. All data must be machine-processable, standardized and stored with defined interfaces. Then they will be the "gold of the 21st century" and offer numerous opportunities for sustainable plant operation. Digitization is also more than sensible from an economic point of view. Increased plant transparency leads to improved availability. Not least because components only need to be maintained or replaced when AI has detected actual anomalies.

Read the long version:



PHOTOS: LENZE SE, ISTOCK

Lenze

Lenze SE
www.lenze.com

“The German Airport Supply Industry Can Make a Significant Contribution to Climate Neutral Airports.”

INTERVIEW WITH OLIVER LUKSIC, PARLIAMENTARY STATE SECRETARY AT THE GERMAN FEDERAL MINISTRY OF DIGITAL AFFAIRS AND TRANSPORT

How do you view the current development of the German aviation industry, especially with regard to the recovery after the pandemic?

Oliver Luksic: The pandemic was the biggest crisis in civil aviation, but passenger volumes are steadily heading toward pre-crisis levels. The main driver is the high demand for long-haul flights, especially to North America and Asia, and to Mediterranean vacation destinations. Despite the increase in passenger numbers, summer travel went overall smoothly. This is thanks overall to the measures taken

and the cooperation of all system partners. However, we are witnessing a new balance emerges. A decline in business travel and the increase in vacation-related flights will lead to a shift in air traffic to countries for which tourism is a particularly important sector of the economy. Air freight made gains throughout the pandemic but is now suffering from the uncertain economic situation. Currently, freight volumes are stabilizing at a reduced level.

The closure of Ukrainian and Russian airspace affects passenger and cargo traffic. Flight times to Asia continue

to increase. From a competitive perspective, this is a problem, as companies from Asia to a large degree are not affected by the closure and take the shorter route. So there are still challenges after the pandemic.

How do you assess current developments with regard to the issue of sustainable aviation in Germany, and what measures is the German government taking to drive this forward?

Oliver Luksic: The path to climate neutrality is an essential task for our future. The German government is working intensively on measures to

Oliver Luksic, Parliamentary State Secretary at the German Federal Ministry of Digital Affairs and Transport, co-hosts the “Climate Neutral Aviation” working group with Dr. Anna Christmann, the Federal Government Coordinator of German Aerospace Policy. In an interview with GATE, the politician took stock and also addressed the challenges that airports will have to face in the future.



Oliver Luksic, Parliamentary State Secretary at the German Federal Ministry of Digital Affairs and Transport

make aviation more climate and environmentally friendly. At the national level, we have succeeded for the first time, together with the German Federal Ministry of Economics and Climate Protection (BMWK), in bringing together all those responsible from industry, research, civil society

and the German government in the “climate neutral aviation” (AKkL) working group. This group is developing proposals to make aviation more climate neutral. My colleague, the German government’s coordinator for German aerospace in the BMWK, Dr. Anna Christmann, MdB, and I co-chair the AKkL.

Three working groups focus on the market ramp-up of sustainable aviation fuels (SAF), technologies, and efficient air transport.

Sustainable renewable aviation fuels have the greatest potential to limit CO₂ emissions from air traffic. For this reason, the BMDV is promoting the market ramp-up in particular. Funding for pilot and demonstration plants for the production of SAF is already underway. In addition, two measures to promote industrial-scale production plants are to follow this year. The German government sees particularly promising approaches in biogenic kerosene from waste and residual materials and electricity-based kerosene.

With its recent decisions on the Renewable Energy Directive (RED II) and the ReFuelEU Aviation Regulation, the European Union has created the legal framework for the introduction and use of SAF.

Measures of the International Civil Aviation Organization (ICAO) apply worldwide and are therefore particularly important for climate protection. In October 2022, the ICAO set a long-term climate target for aviation of net zero CO₂ by 2050. To this end, we intend to establish global framework conditions at ICAO at the end of November.

What challenges is the Sustainable Aviation Fuels Working Group (SAF WG) currently facing?

Oliver Luksic: To make Germany a pioneer in CO₂ neutral flying, we need kerosene from renewable energies. With the Power-to-Liquid (PtL) Roadmap, an ambitious roadmap for the ramp-up of electricity-based kerosene was presented two years ago. The SAF WG picks up where it left off and expands the focus to include biogenic SAF.

Although the blending quotas provided for in the ReFuelEU Aviation Regulation can stimulate demand, they cannot yet ensure sufficient investment. The ReFuelEU Aviation Regulation also provides for regular reviews. These ensure the rapid availability and widespread use of SAF, as well as the maintenance of fair competition.

What is the German govern-

ment's strategy regarding airport infrastructure to promote environmentally friendly aviation in Germany and the integration of green technologies? What efforts are being made with regard to alternative drives on the apron/ground power supply?

Oliver Luksic: The German government is committed to the goal of climate-neutral airport operations. The BMDV is supporting airports until 2026 with a funding program for the climate- and environmentally-friendly supply of ground power to aircraft from resources of the Climate and Transformation Fund (KTF). By using alternative technologies, we want to significantly reduce emissions of greenhouse gases and air pollutants at airports. For this reason, we are working with the Federal Office of Administrative Services and NOW GmbH to promote the conversion of ground power supply systems from diesel operation to renewable sources.

In addition, the German government is subsidizing other projects that are relevant to climate friendly airport operations. These include, for example, the purchase of commercial vehicles with electric and alternative climate-friendly drives, measures to increase energy efficiency in buildings,

and the construction of refueling and charging infrastructure with billions of euros from the KTF.

What role will hydrogen play? And how will the German government ensure scaling to meet future demand?

Oliver Luksic: Hydrogen and its downstream products are an important building block for achieving climate protection targets, especially in aviation. The BMDV supports research and development of alternative propulsion systems, e.g. via the National Hydrogen and Fuel Cell Technology Innovation Program. This covers fuel cell-based drive system trains and auxiliary power units.

The German Cabinet has just approved the update of the National Hydrogen Strategy. In the update, we doubled the expansion target for electrolysis capacities by 2030 from the previous five gigawatts to 10 gigawatts. For the volumes required beyond this, we plan to develop an import strategy.

How do you assess the role of the German airport supply industry in developing and promoting sustainable solutions, and what support does the German government offer this industry?

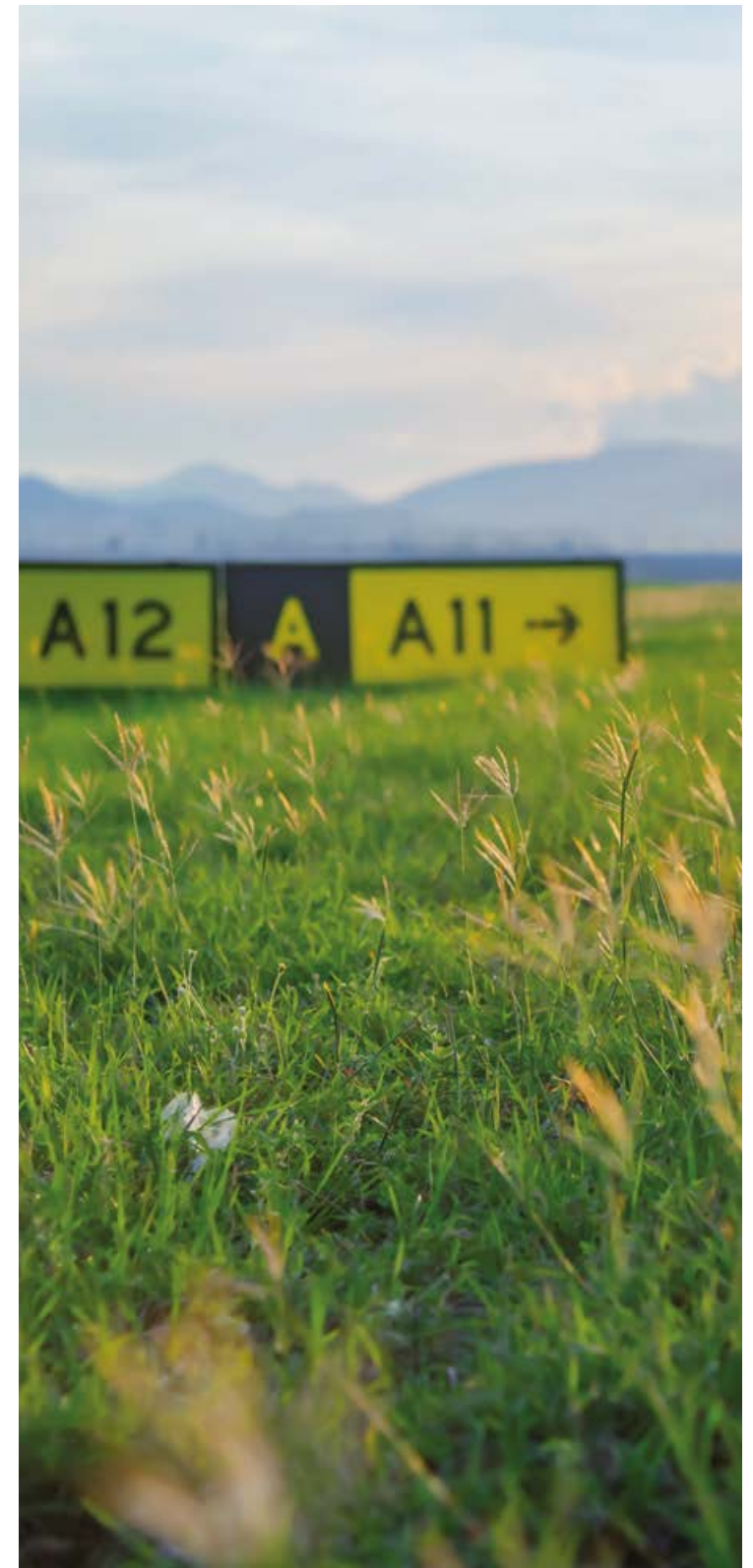
Oliver Luksic: The German

airport supply industry can make a significant contribution to "climate neutral airports" by developing innovative technologies, e.g. with energy-efficient baggage handling, lighting and vehicle systems. In doing so, it can draw on a wide-range of funding programs, as just mentioned.

What conclusion would you draw after about two years of federal government and what points still need to be addressed?

Oliver Luksic: In the aviation sector, the German government has initiated all the important tasks set out in the coalition agreement. Internationally, we have been actively involved in shaping the framework conditions for climate friendly aviation. In the case of emissions trading, the German government is already working on national implementation. We now want to convince all global partners of the importance of this task in order to enable more sustainable air transport for future generations.

PHOTOS: FEDERAL GOVERNMENT, SANDRA STEINS, ISTOCK



Electrification of the Airport Apron: A Path to More Sustainable Flight Operations

The airport apron is not only a physical space between the runway and the airport terminal, but also a space of orchestrated chaos. Every step, every maneuver, every activity is precisely planned and executed.



The apron is the pulse of the airport, and like any pulse, it must beat regularly and without interruption. The topic of electrification is particularly relevant here, because it's not just about moving aircraft, but also about how it's done. Charging points are crucial for the smooth implementation of electrification measures.



Guest author Michael Brandstötter,
Head of Sales and Marketing, Dynell

nomical and efficient method of ground power supply, their implementation at existing airports remains a challenge due to the lack of electrical infrastructure, especially at outlying positions.

Why electrification?

Why is electrification on the airport apron the focus of discussion? One important reason is the global trend toward electrification in the transportation sector. This is not just about keeping up with the times, but about making a sustainable contribution to the future of tomorrow. Even though airports are only responsible for a fraction of the global carbon footprint, it is becoming increasingly urgent to reduce it - not least to improve the image of the industry. In addition, electrification offers economic advantages: Electric systems tend to be more efficient and require less maintenance than their diesel-powered counterparts, although there are concerns about actual sustainability, particularly with regard to the battery supply chain. Another advantage is the potential for improved efficiency and operational reliability. However, actual implementation depends heavily on existing charging and refueling infrastructure, which is currently lacking at many airports. While efficiency is assured through electrification, there are still major challenges with operational safety, especially with the implementation of hydrogen equipment on the apron, some of which are also legitimate safety concerns.

The classic airport apron

The traditional airport apron has changed significantly over time, with the current trend clearly moving toward electrification. In addition to electrification, autonomous ground support equipment (GSE) operation is also gaining momentum. In the past, many ramp activities relied on equipment that relied heavily on fossil fuels. This has led to various negative impacts, such as high CO₂ emissions, air pollution, and noise. In particular, ground power units (GPUs) account for about 40% of CO₂ emissions during a handling cycle. These units, which are often equipped with diesel engines of up to 260 kW, also generate significant noise levels. There is currently an intense effort to replace diesel-powered GPUs with alternatives such as battery- or hydrogen-powered GPUs. Although grid-fed static inverters are considered the most eco-

Technical aspects of electrification

Technological aspects of apron electrification play a critical role in the sector's evolution and adaptation. Electric traction vehicles, ground power systems and other electrical equipment are at the core of this transformation. A key issue here is the creation of a consistent and uniform charging infrastructure. While some standardization of connectors has already been achieved in the automotive industry, the situation in the GSE sector is more complex. Different systems, from on-board charging systems to different battery types such as lead-acid and lithium, require a variety of charging stations and voltage requirements. Not only the technical aspects have to be considered, but also the infrastructure, such as sufficient connection capacity and space for charging stations. The advantages of electric systems over conventional diesel drives are obvious: they are more efficient per kWh than diesel, often more compact in design, require less maintenance, and reduce the CO₂ footprint and noise pollution. However, as mentioned above, integrating these systems, especially in terms of charging infrastructure, energy storage and grid capacity, is a major challenge.

Case studies: airports in transition

Airports around the world are turning to electrification to improve their environmental and economic footprint. One outstanding example is Schiphol Airport in the Netherlands. As a pioneer in this development, Schiphol has set itself the goal of being fully electrified by 2028. The airport is participating in the EU's "Tulips" funding program, under which both battery and hydrogen-powered approaches are being intensively tested. The advantages for Schiphol are clear: a better environmental balance, a better image, lower noise emissions and the opportunity to benefit from subsidies. Investments in clean technologies have also helped reduce operating costs, particularly through the use of sustainable

energy sources such as battery storage and wind turbines. At the same time, airports like Schiphol face several challenges, including building the necessary infrastructure, establishing technology standards and ensuring energy management. Nevertheless, feedback from airport employees and passengers has been overwhelmingly positive. Noise reduction and smoother check-in have improved the overall airport experience, despite initial teething problems in implementing these new technologies.

Challenges and barriers

The road to airport electrification is riddled with obstacles. For one thing, it requires significant financial resources, as investments must be made in charging infrastructure and technological innovations. For another, operational processes must be continuously adapted and optimized. Existing older infrastructures and systems can make modernization even more difficult. It is not always practical to introduce completely new systems. Here, solutions such as retrofitting or incremental modernization are needed to make the introduction of electrification seamless. Another critical factor is dealing with stakeholder concerns and resistance. Be it safety concerns, uncertainties in dealing with the new technology or fears of possible business interruptions - transparent and open communication is crucial.



It not only helps to clear up misinformation and misunderstandings, but also builds trust and promotes broader acceptance of electrification efforts.

Outlook for the future

The future of the apron sees ever-increasing electrification. Driven by global decarbonization, battery and hydrogen-powered solutions will become more dominant in the coming years. As technologies mature and infrastructure investments increase, the implementation of these initiatives will become more efficient. This can be seen, for example, in the promotion of GPUs in Germany. Further developments in electromobility promise more powerful batteries, shorter charging times and advanced energy management. Opportunities such as renewable energy integration and networked real-time data will further enhance sustainability and efficiency on the airport apron. In addition, partnerships and joint initiatives between airports, equipment manufacturers and technology providers will pave the way for a greener aviation industry.

PHOTOS: DYNELL

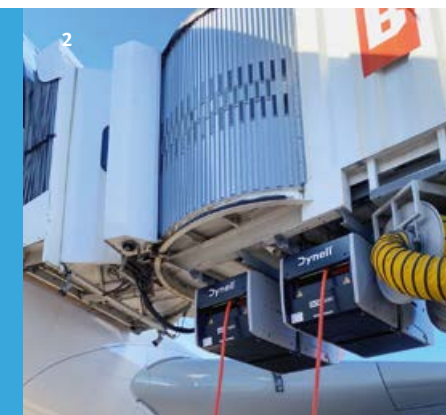
Overall, a dynamic and promising picture is emerging for the aviation of the future, in which the airport apron plays a central role in environmental change.

Conclusion

Electrification plays a central role in efforts to make airports more sustainable and in the global fight against climate change. It is not only a technological innovation, but also a sign of our commitment to responsible and environmentally friendly aviation. The positive impacts are many, from reducing CO₂ emissions to increasing operational efficiency and creating a more pleasant working and traveling environment at airports. It is time for other airports to follow this exemplary path and integrate electrification into their operations. This is not only a matter of technological modernization, but also a much-needed step to preserve our planet for future generations.



As a pioneer in 400 Hz technology, Dynell is focused on providing innovative and sustainable solutions that pave the way to a greener aviation future. In this regard, new benchmarks have already been set for grid-connected ground power supplies in terms of modularity, ergonomics but also efficiency. Further, Dynell is focused on implementing this patented and world-leading technology in autonomous products as well. A GPU powered by European-manufactured batteries is already in volume production. The GPU with H₂ fuel cell is currently under development with European partners.



- 1 Dynell's all electric ground power units feature the latest lithium battery technology
- 2 Empower a CO₂ free future with Dynell's most efficient solid-state converters

“We Want to Enable a Seamless Transition to Sustainable Mobility at and Around the Airport.”

INTERVIEW WITH DR. CHRISTOPH EBERT, HEAD OF E.ON DRIVE GERMANY AND AUSTRIA



Dr. Christoph Ebert, Head of E.ON Drive Germany and Austria

What potential does E.ON Drive see in a GATE membership?

Dr. Christoph Ebert: E.ON Drive holds a leading position in the field of electromobility throughout Europe. We see enormous potential in a GATE membership. This partnership allows us to bring our expertise to the airport industry and work with members to drive innovative solutions for the electrification of all use cases. The synergies between our competencies and airport requirements are extremely promising. By joining GATE, we aim to network, learn, share our expertise, and jointly design projects to advance electrification at and around airports.

What competencies does E.ON Drive offer airports? What makes you an attractive partner for airports and suppliers?

Dr. Christoph Ebert: E.ON Drive has a wide range of competencies. As a provider of electric mobility solutions for passenger cars and commercial vehicles, we offer comprehensive expertise from a single source. Our Europe-wide network enables us to implement solutions

efficiently, comprehensively and in a scalable manner. We see ourselves as an all-round provider who, on request, covers all aspects from consulting and operational implementation to the management of the charging hardware. This holistic approach makes us a very attractive partner for airports and suppliers.

In addition, E.ON supplies millions of households and businesses across Europe with green energy every day and helps customers generate it themselves. With the energy transition, we are moving away from fossil fuels and toward CO₂ free and decentralized energy generation. This development brings with it challenges and opportunities for the energy industry. Together with our customers, we want to play a key role in driving forward decarbonization in Europe.

Do different models already exist for the charging infrastructure in parking garages?

Dr. Christoph Ebert: Absolutely. The wide variety of parking options at airports - for employees to short-term parkers to rental car customers - requires flexible solutions. Here we rely on our

PHOTOS: E.ON DRIVE



1



2

E.ON Drive is the pulse of electric driving. The mission is to make eMobility radically simple for all of Europe. The product portfolio includes smart solutions for charging on the go, at work, and at home. From consultation, construction of charging stations, modern billing systems to the supply of green electricity, E.ON Drive accompanies the customers at every step. The company is a 100% subsidiary of E.ON SE.

- 1 Hyperchargers are suitable for short stops at the airport
- 2 Wallboxes can be used to charge the electric car during longer stays
- 3 Car rental companies will electrify an increasing number of parking spaces

“At E.ON Drive we believe in environmentally friendly transportation.”

Dr. Christoph Ebert,
Head of E.ON Drive Germany and Austria

modular approaches, which enable us to serve the different needs of various user groups. Whether it's fleet vehicles, visitors' cars or employees, we offer a charging infrastructure that is individually tailored to them. For example, classic wallboxes with lower charging capacities are suitable for rental car companies because the cars can be scheduled and often charged overnight. Airport employees also usually park for several hours and can use such standard charging stations.

Those who are only at the airport for a short time or want to quickly charge the car before continuing their journey are more likely to head for a fast charging station with a charging capacity of 300-400 kilowatts. Load management is particularly important in all these charging scenarios. This makes it possible to optimally

use and control the available grid capacity, thus optimizing costs. In addition, we offer an accurate and precise billing system that works on a kilowatt-hour basis. In this way, we create a reliable and user-friendly charging experience for all e-mobilists.

What new business areas has E.ON Drive already identified?

Dr. Christoph Ebert: Electrification affects almost all areas of an airport. We have identified promising business areas:

- Airport-owned vehicles can be temporarily charged at high charging speeds or recharged at night in the depot, enabling the electrification of the apron and many supply and customer chains.
- Suppliers are often located close to the airport but with their own logistics sites - due to predictable routes and typically shorter distances, their own charging facilities are often ideal here for overnight or ramp charging and are perfectly adequate for daytime mileage.
- In parking management, we work with parking garage operators, among others, to create modern and appealing charging infrastructure for both short-term and long-term parkers. In this context, our customers have access to a wide range of normal and fast charging stations.
- We are also active in the rental car business to supply green energy to the growing fleets of electric cars and trucks. In this way, we contribute to the sustainable development of the mobility sector.

What might the roadmap for apron electrification look like?

Dr. Christoph Ebert: The electrification of the apron follows a similar concept as in the car and truck sector. Driver idle and rest periods are used to enable rapid intermediate charging of vehicles, while battery charging to 80 or 100% can take place overnight in the depot. Adapting

the charging power and duration to the respective driving profile is crucial here. We offer a wide range of solutions for this, from intelligent wallboxes to powerful fast chargers. Our portfolio also includes megawatt charging for commercial vehicles. Smooth installation and trouble-free operation are ensured by our state-of-the-art backend system, which can also communicate with the airport's fleet management system via an interface.

It also makes sense to closely coordinate the electrification of the vehicle fleet and the development of the charging infrastructure.

What potential does E.ON see as an energy supplier?

Dr. Christoph Ebert: Energy transition projects and renewable energy plants near airports offer a lot of potential. As a provider of energy solutions, we see opportunities here, for example, in the company's own energy generation, including photovoltaics in combination with storage solutions. The locally generated energy can be used on site to operate the vehicle fleet or for building consumption.

Do you have a vision for the electrification of the airport?

Dr. Christoph Ebert: Our vision includes the electrification of almost all vehicles used on the apron and throughout the airport site, plus a convenient charging infrastructure for airport visitors and employees that meets their needs. In this way, we want to enable a seamless transition to sustainable mobility at and around the airport.

The carbon footprint of electric airport vehicles is of course even better if they are charged exclusively with green electricity. In addition, many airport building roofs and surrounding open spaces offer the opportunity to install photovoltaic modules and thus produce additional green electricity locally and use it for mobility.

PHOTOS: E.ON DRIVE

How is E.ON Drive positioning itself in the field of urban air mobility?

Dr. Christoph Ebert: At E.ON Drive, we believe in environmentally friendly transportation. Our focus is on planning, building and operating charging solutions - be it for cars, trucks or even future flying transport solutions. This is made possible by our extensive expertise in renewable energy, energy infrastructure and storage. We have already been in contact and discussions with manufacturers of electric flight solu-



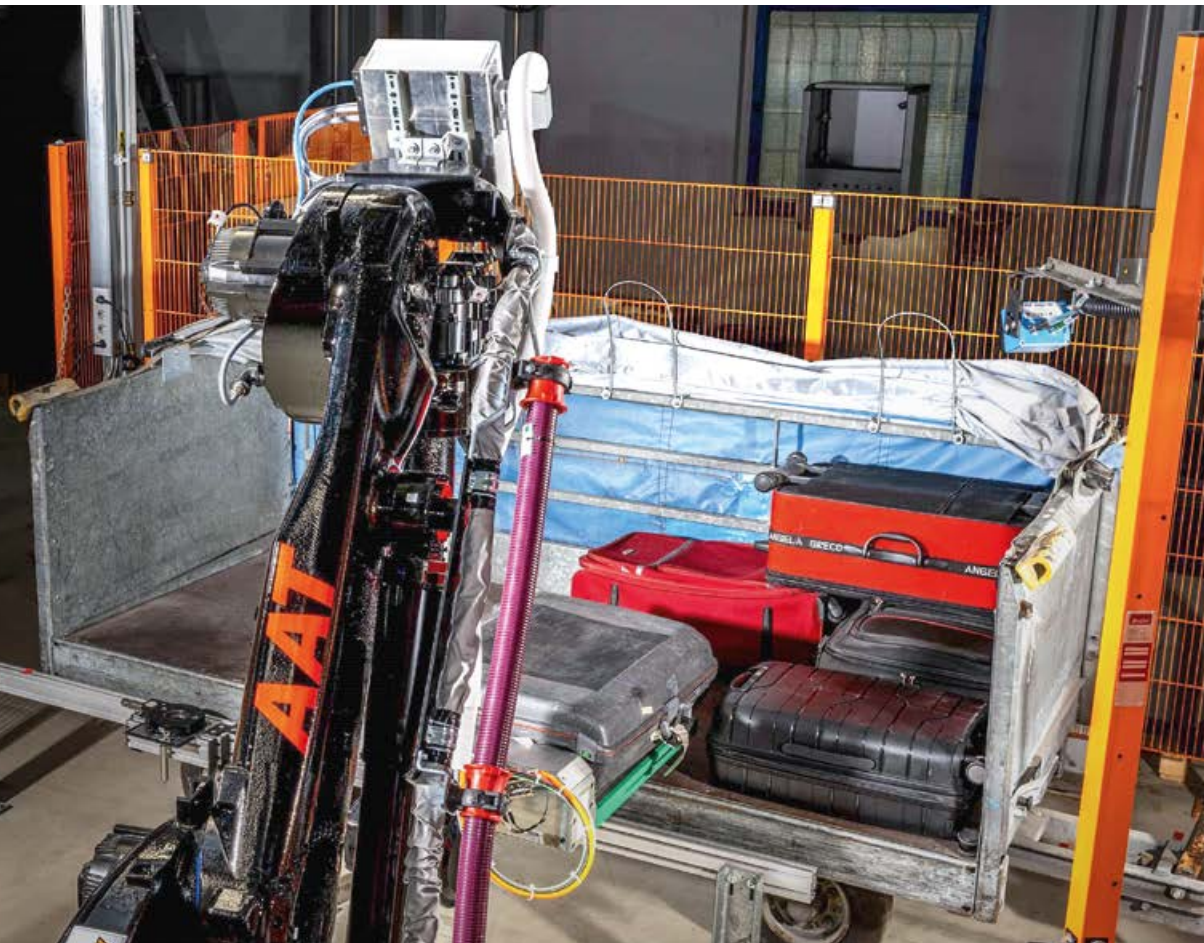
tions for years. We recognize potential in this technology and are convinced that it will help shape the future of mobility in selected application cases. We naturally want to make our contribution to this with our expertise.

e-on
Drive

E.ON Drive
www.eon-drive.de

Complete Automation in Baggage Handling

Robotics and conveyor technology specialist AAT develops fully automated processes for baggage loading at the airport. The interaction of the robotic solution ABLE MK2 with innovative, AI-based solutions for automatic baggage sortation of PSI airport/BHS focuses on high handling throughputs without personnel deployment.



PHOTOS: PSI LOGISTICS, AAT AUTOMATION

Airports are highly complex multifunctional service centers. Controlled by modern software systems, operational processes are seamlessly integrated, employees and passengers are informed and automated systems such as baggage handling are used efficiently. To avoid unnecessary waiting times, passengers can check in online and even check in their baggage themselves at all modern airports. However, the underlying processes in the baggage centers have so far only been automated up to the loading end points. There, the baggage is manually removed from the conveyor system and loaded into the transport containers or onto the trailers of the baggage route trains.

AAT and PSI Logistics are teaming up to handle high throughputs without personnel deployment

This segment of physically demanding activities is characterized by high failure rates and the highest staff turnover in airports. Against this background, efforts to further automated baggage handling at airports have been growing in recent years. For example, AAT Automation GmbH, which is based in Karlsruhe, Germany, and founded in 1995, has successfully implemented a robot-assisted automated loading solution at the conveyor system/baggage loading interface at Amsterdam Schiphol Airport. "AAT has been developing and implementing innovative solutions for automation requirements with conveyor technology, robotic systems and mobile transport systems for more than 25 years," explains Roman Kaiser, managing director of the young GATE member AAT. "With the Automated Baggage Loading Equipment (ABLE), we have a solution for automated loading of baggage onto cargo trailers and containers in our portfolio, which will shape the future of airport operations with the newly developed ABLE MK2 robot."

Robotics, sensors, imaging technology and software that use special algorithms and artificial intelligence (AI) to process the recorded information in fractions of a second and allow the jointedarm robot to act with optimal options for access and storage form the basis of the solution. "Eighty years of software development went into the solution," says Kaiser, illustrating the enormous programming effort required for the targeted movements of the hardware components.

AI-based innovations

Articulated robot solutions have been reliably supporting manufacturing and picking processes in industrial production and retail logistics centers for decades. Mature technology and state-of-the-art sensor technology support safe

cooperation between machines and humans. “In industry and retail, robots usually process pre-defined, uniform formats and thus achieve high throughputs,” Kaiser explains. “However, shapes, colors, substance and surfaces are largely individual in the baggage sector. Therefore, each access and deposit position must be calculated individually. So far, this has somewhat limited the performance of the robots. We are currently working on a sustainable optimization.”

AAT has gained an important partner for this in the Airport Division of the software company PSI Logistics. With the PSIAirport Solutions for automated baggage handling (PSIAirport/BHS) and baggage reconciliation (PSIAirport/BRS), the software developers have set standards. “With the integration of methods and processes of artificial intelligence (AI), fuzzy logic, neural networks and deep learning, innovative further developments are continuously being made,” emphasizes Lars Wolff, Product Manager PSI Logistics. For example, PSI Logistics has launched Closed Circuit Television (CCTV), an AI-supported system for AutoID, documentation and tracking in automated baggage handling, which complements PSIAirport/BHS and is already proving successful at Hamburg and Cologne/Bonn airports.

With the video monitoring module PSIAirport/CCTV, 200 high-resolution cameras are installed at the airport’s conveyor and sorting line in Hamburg. They continuously record the baggage items linked to the flight and passenger data as well as their barcodes. “Using neural networks, the software can individually identify the pieces of luggage without additional scanners just by capturing images and documenting their path on the conveyors,” says Wolff. “It automatically recognizes and processes the size and color of the luggage, distinguishes between hard suitcases and soft travel bags, and records equipment features such as handle design and number of wheels.” In addition, the software detects any damage to the luggage, automatically reports



“With the integration of methods and processes of artificial intelligence (AI) further developments are continuously being made.”

Lars Wolff, Product Manager PSI Logistics

any changes and supports the determination of the cause. Investments in additional scanner technology are no longer necessary, the error rate is reduced, resources for rework are eliminated, which in conventional processes at airports can account for up to 10 % of the baggage volume, and the service level is increased.

Dynamic scheduling for uniform resource utilization

Behind this is sophisticated programming for what is known as Deep Learning. For example, the neural network for Deep Learning was “fed” with more than 2,000 images of baggage in different positions and from different perspectives.

On this basis, the software “recognizes” all further variants of luggage items fully automatically - including their individual characteristics. Further deep learning and analyses are performed in real time during operation thanks to resource-saving algorithms.

Additionally, an AI-based assistance system, the “Dynamic Disposition” of PSIAirport Solutions, ensures an equalization of traffic peaks and an even utilization of work areas and resources. Based on the available data and analysis of the holistic data stock, the system determines the optimum of a resource-optimized system and process control in real time and initiates it, or suggests appropriate options to the dispatchers. “In a joint solution, the data of the CCTV solution as well as the real-time analyses of the Dynamic Scheduling assistance system can flow into the control software of the robots in interaction with PSIAirport/BHS, generate improved baggage sequencing and significantly increase

- 1 André Beck PSI Logistics, Daniel Kaiser and Roman Kaiser, AAT, work on new solutions for automated baggage handling at airports
- 2 High resolution video tracking based on neural Networks



2

the performance of ABLE,” explains AAT Managing Director Kaiser. “The integration of Dynamic Scheduling ensures continuous optimal loading of the loading robots, and the data feed from PSIAirport/BHS and CCTV acquisition reduces the identification effort for robot handling. The end-to-end automated loading solution would offer safety, efficiency and optimal throughput - and it could also work in reverse, unloading onto arrival terminal baggage belts.” Kaiser sees the next development steps in driverless transport of baggage onto the apron and a future mobile automated loading solution at the aircraft.

“The further automation of functional processes on the basis of self-learning and self-deciding intelligence, opens up significant optimization potentials,” summarizes PSI product manager Wolff. “PSI Logistics is already working on various optional applications of the AI/CCTV solution, which will result in further interesting solution approaches for the airport environment.”

PHOTOS: PSI LOGISTICS, AAT AUTOMATION

AAT
Automation GmbH

AAT Automation GmbH
www.aat-gmbh.de

PSI

PSI Logistics GmbH
www.psilogistics.com/en/solutions/airport-systems/

INTERNATIONAL TRADE SHOWS AND CONFERENCES

Stay Connected Worldwide

Even in the age of digitalization, trade shows and conventions are still the place where decision-makers meet, contacts are made, and deals are closed. GATE, The Airport Technology Network, and its member companies are therefore represented at all relevant leading trade fairs of the airport industry worldwide.

Since its establishment, GATE has been present at the inter airport Europe exhibition in Munich. For over 40 years, the fair has been the unique event uniting the global airport community. Every two years, the event attracts thousands of visitors and presents cutting-edge products, pioneering technologies, and disruptive breakthroughs in operational systems.

The inter airport China has been around for the past 16 years and is witnessing first-hand the rapid development of airport construction in the country. In parallel with China's economic growth in recent decades, the civil aviation market in the People's Republic has also multiplied. That's why GATE and its members will be back in Beijing in 2024.

As the airports in the Asia-Pacific region is projected to reach full recovery by 2024, the inter airport South-East Asia provides the perfect platform for airport solution providers to boost

and elevate their potential. This is where we will meet with some of Asia's most influential decision-makers from the airport industry.

GATE is also part of the Passenger Terminal Expo every year, the world's largest annual airport design exhibition. The upcoming edition will take place between 16th and 18th April 2024 at Messe Frankfurt, Germany.

Of course, the Airport Show Dubai also has a permanent place in our trade fair calendar. We will join the 23rd edition in May 2024 to provide the Middle East, South Asia and the Africa region the opportunity to see innovations in airport sustainability, digitalization, and urban air mobility.

For the second time we showcased our products and services to over 2,000 airport professionals at the ACI Airport Council International North America Annual Conference and Exhibition. We are already looking forward to



THIS IS HOW OUR MEMBERS BENEFIT FROM INTERNATIONAL TRADE FAIRS:

- + with their own booth and, if desired, with GATE branding and marketing material
- + with a participation in the GATE joint booth
- + with a presence on the German Pavilions supported by the German Federal Ministry for Economic Affairs and Climate Action

meeting 2,000 delegates from over 200 airports and airport authorities again next year in Grand Rapids, USA.

New additions since 2022, are the IndiAirport and the Saudi Airport Exhibition. These trade fairs are a good example of how GATE is becoming active as initiator in growth markets: we establish important local contacts and set up a new trade fair together with an implementation company. The result is fresh impulses for the economy and new opportunities for our association members.

Participating in airport trade shows worldwide in collaboration with GATE, The Airport Technology Network, offers valuable benefits for your company. It enables a direct contact with the aviation industry's decision-makers, creating significant business opportunities. You can join our shared booth, be part of the German Pavilion or with the support of GATE and define how your company will partake in upcoming events.

The annual trade shows provide ideal platforms to discover the latest trends and innovations, securing a competitive edge. Collaborating with GATE enhances your company's visibility and credibility, as you become part of a reputable network. Overall, engaging in airport exhibitions with GATE promises a rewarding investment in expansion and success.

PHOTOS: GATE

- 1 Sybille Pfaff, Consul General of the Federal Republic of Germany in Dubai, GATE President Kay Bärenfänger and His Highness Sheikh Ahmed bin Saeed Al Maktoum, President of the Dubai Civil Aviation Authority, Chairman of Dubai Airports, Chairman and Chief Executive of Emirates Airline and Group, at the Airport Show Dubai
- 2 At the GATE joint booth, our members present themselves at Passenger Terminal Expo, among other shows
- 3 Miriam Schönrock, Head of Marketing, and Jens Reinhard, Managing Director at GATE, support the association members at numerous trade fairs



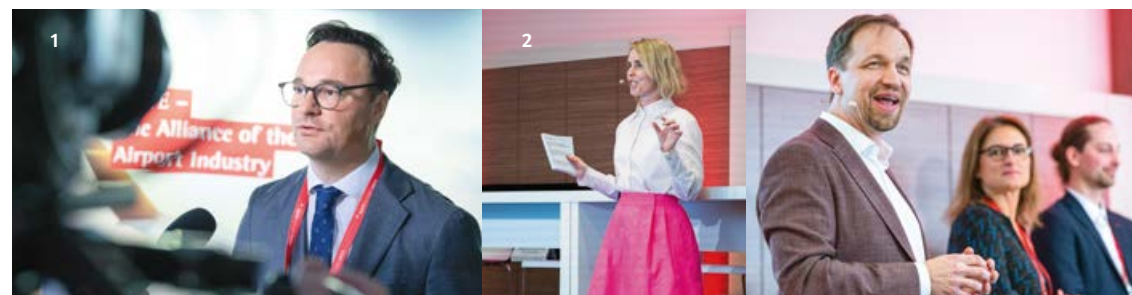
Green, digitalized, innovative - the future of aviation and airports can be described in a few words. But the road to this goal can only be mastered if all the all those involved exchange ideas and experiences. GATE, The Airport Technology Network, therefore invites to the fifth innovation forum GATE FUTURE in Berlin.

The Innovation Forum of the Airport Industry

The complexity of the aviation and airport industry challenges GATE and its members every day. Not only increasing environmental requirements for the air traffic of the future, but also the increasing international competition pose new challenges for the German aviation industry. At the Innovation Forum, we look beyond the end of our noses and also discuss with companies that will contribute their competencies to the apron

or terminal in the future. Companies such ABB and SAP will be on stage alongside our members to share their visions with us.

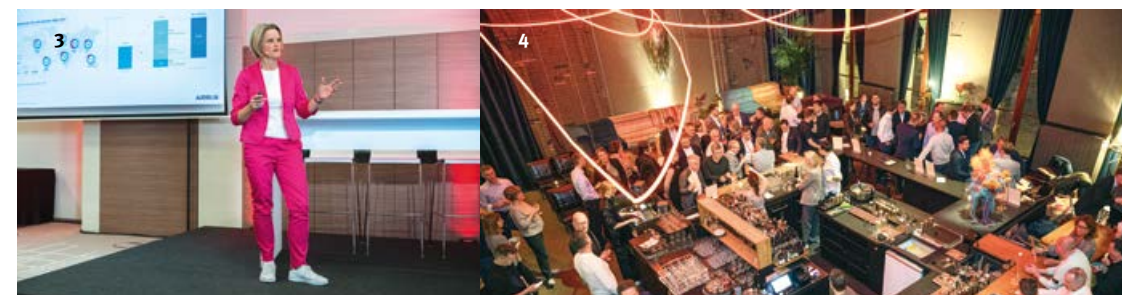
GATE FUTURE focuses on sustainable developments and new technologies that increase the efficiency of airport processes and passenger satisfaction. Topics such as digitalization, automation, artificial intelligence in baggage handling, hydrogen propulsion, airport design



- 1 Oliver Luksic, Parliamentary State Secretary at the German Federal Ministry of Digital Affairs and Transport, gave the opening speech
- 2 Miriam Schönrock and Jens Reinhard from GATE hosted the event
- 3 Nicole Dreyer-Langlet, Vice President Research & Technology Germany, Member of the board, Airbus Operations, held a keynote
- 4 The finale: networking in the KINK bar

or energy efficiency will be explored in depth in ten workshops. Participants decide on site which two workshops, one in the morning and one in the afternoon, they would like to attend. In addition, learn more about tomorrow's technologies in two keynotes.

After the official program, at the joint dinner, GATE is looking forward to an inspiring networking with all participants.



PHOTOS: GATE

14th March 2024
in Berlin, Hotel Steigenberger
am Kanzleramt

- + Keynotes
- + Panel Discussions
- + Workshops
- + Networking Dinner

Register now!
www.gate-future.de



Special Deals for Airports and GATE Members

Saudi Arabia's Vision 2030

DISCOVERING THE FUTURE POTENTIAL OF THE AVIATION INDUSTRY IN SAUDI ARABIA WITH GATE

King Abdullah Financial
District in the heart of Riyadh

GATE, The Airport Technology Network, supports access to new markets with delegation trips to various regions of the world. Target countries are selected based on their growth potential and current developments. “In view of the rapid increase in passenger traffic and new extensive construction projects, we have decided to embark on a market exploration trip to Saudi Arabia,” explains Jens Reinhard, Managing Director of GATE. The delegation trip will take place from December 16 to 18, 2023. With the delegation trip, GATE creates the opportunity to get to know this prospering market and to talk to decision-makers in the industry.

Saudi Arabia's Vision 2030: massive air transportation expansion

By 2030, Saudi Arabia plans to invest \$100 billion in expanding its aviation infrastructure and expanding its aircraft fleet. This ambitious plan was unveiled at the Future of Aviation Forum in Riyadh in May 2022. The vision is to increase annual passenger capacity from the current level of around 48.7 million to an impressive 330 million. At the same time, direct connections

to Saudi Arabia are to be expanded from 100 to 250. There is also an ambitious target of 4.5 million tons for air freight capacity. This is intended not only to diversify the economy but also to position the kingdom as a major hub for trade, business and tourism. It will also focus on training and developing local talent, as well as innovative technologies to increase capacity and service quality and promote sustainable measures. The outlook for the future of Saudi Arabian aviation remains exciting and promising.

To achieve its goals, Saudi Arabia is planning not only to modernize and expand existing airports, but also to build new airports, such as NEOM International Airport, NEOM Bay

Airport, King Salman International Airport Riyadh, Red Sea International Airport and Jubail Industrial City Airport, which is still in the planning stage. Four of these projects are planned to be implemented in the form of public-private partnerships (PPP) to be managed by Matarat Holding, a subsidiary of the General Authority of Civil Aviation (GACA).

Another milestone in Saudi Arabia's plan to modernize and expand its aviation infrastructure is the establishment of a new national carrier, Riyadh Air. This airline is expected to fly to over 100 international destinations by 2030 and compete directly with regional giants such as Emirates and Qatar Airways. The investment to build this airline is estimated



at an impressive \$30 billion. Riyadh Air is seen as a critical success factor in reaching the destinations of more international transit passengers and foreign tourists. By 2030, the number of international transit passengers by air is expected to increase more than seven-fold from less than 4 million at present to 30 million. At the same time, the number of foreign tourists is expected to increase from 12 million in 2022 to 55 million annually over the same period.

Riyadh Air is supported by the development of King Salman International Airport (KSIA) in Riyadh. This project is planned in two phases and will gradually replace the existing facilities at King Khaled International Airport. KSIA is expected to become a major hub for passengers and cargo, handling 185 million passengers and 3.5 million tons of cargo annually at full capacity.

The creation of Riyadh Air and the development of King Salman International Airport are part of a broader goal to make Saudi Arabia a global transportation and logistics hub by 2030, diversifying the economy and reducing dependence on oil. Investment in the country's aviation infrastruc-

Be part of the Middle East's largest aviation developments



Join the GATE Delegation Trip from December 16 - 18, 2023

Or visit the GATE Pavilion at Saudi Airport Exhibition in Riyadh from December 19 - 20, 2023 and November 11 - 12, 2024

More information: www.saudiairportexhibition.com

Find out more:



ture totals around US\$100 billion (U.S.), representing a significant boost for the industry and the kingdom's economy as a whole.

Neom Airlines: new airline plans operations from late 2024 Neom Airlines, a new airline, plans to begin operations in late 2024, initially from the existing Neom Bay Airport be-

fore later operating from Neom International Airport. The airline will focus on providing travel to Neom for tourists, residents and business partners. The move is part of efforts to boost development and tourism in the Neom region, a future project in Saudi Arabia. A U.S. company, Aecom, has been contracted to project manage the new airport. This

airport will be built inland near the Tabuk end of the 170-kilometer "The Line" development region. Although not officially confirmed, the first phase of the airport is expected to have a capacity of 25 million passengers per year, with a second phase potentially increasing capacity to 50 million passengers per year. The long-term vision is for this airport to be-

come the largest in the world, with a capacity of 100 million passengers per year.

Klaus Goersch, the CEO of Neom Airlines, emphasized the strategic geographic location of the region and the growing economic activity that will result in this airport growing into a global aviation hub serving the Middle East, Europe, America, Asia and other regions.

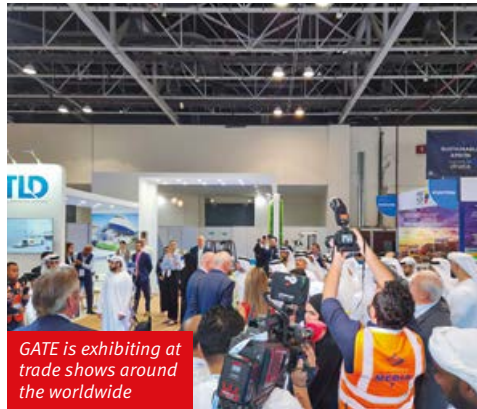
Guest author: Anastasia Georgiadis



- 1 In Saudi Arabia, an unprecedented economic and social transformation is taking place
- 2 King Khalid International Airport, Riyadh
- 3 Prince Mohammed Bin Abdul Aziz International Airport, Medina



Meet GATE at Exhibitions and Conferences



GATE is exhibiting at trade shows around the worldwide



Meet distinguished industry professionals at the GATE FUTURE



The member companies benefit from the opportunity to present themselves at the GATE joint booth

IndiAirport, New-Delhi November 21 - 23, 2023

- ▣ The show presents solutions and technologies for airport construction and equipment

Saudi Airport Exhibition, Riyadh December 19 - 20, 2023

- ▣ The largest dedicated event for airport development in Saudi Arabia

GATE FUTURE Conference, Berlin March 14, 2023

- ▣ The innovation forum for the airport industry

Passenger Terminal EXPO, Frankfurt/M April 16 - 18, 2024

- ▣ The international conference and exhibition for passenger terminal design, management, security and technology

airport show, Dubai May 14 - 16, 2024

- ▣ Leading event for airport construction, operation, technology and services in the MENA region and the Indian subcontinent

GSE Expo Europe, Lisbon September 17 - 19, 2024

- ▣ The show is the industry forum for uniting equipment suppliers with GSE customers.

inter airport China 2024, Beijing September 4 - 6, 2024

- ▣ inter airport China is known in the industry as Asia's leading event focusing on airport construction

Saudi Airport Exhibition, Riyadh November 11 - 12, 2024

- ▣ The largest dedicated event for airport development in Saudi Arabia

Scheduled for autumn/winter 2024

ACI-NA Annual Conference & Exhibition IndiAirport 2024 (German Pavilion)

PHOTOS: GATE

inter airport europe

The world's leading airport exhibition

25th International Exhibition for Airport
Equipment, Technology, Design & Services

7 - 9 October

2025

Munich Trade Fair, Germany

www.interairporteurope.com

Built by
RX

In the business of
building businesses

Join Our Members – Join GATE!



BECOME A MEMBER of the largest industry association in the airport sector with your company and benefit from innumerable advantages:
www.gate-alliance.com/members/membership

