Thu, 4 May 2023
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #159

Editorial

DVN Interior Köln Workshop—A Grand Success!

The 3rd DVN-Interior Workshop in Köln is over. Over 160 participants took in interesting lectures in the field of human-centered interior technology; the Q&A sessions; the exhibitions, and the perfect location in the Pullman Hotel.

We've had a great deal of very positive feedback, and we offer our heartfelt thanks to all participants; speakers, and organizers who made the Workshop such a grand success.

This week, we summarize the Workshop for those who couldn't attend (and as a convenient reminder for those who were there). We also bring you news on the topics of our field: new vehicles; technologies; cloud services; software, and strategic cooperations. In the Coffee Corner we talk about urban mobility, and in mobility news we've got coverage of test tracks for AVs and the Mobility Congress in Madrid. In general news, we look at why Chinese car manufacturers are so successful in China

We hope you will enjoy the Newsletter. We're always listening; please let us know your thoughts!

We're glad you're here with us. Not yet a member? Come **join in**.

Sincerely yours,

Carsten Befelein
Consultant, DVN-Interior

In Depth Interior Technology

DVN-I Workshop in Köln

DVN IMAGE

The theme of the 3rd DVN-Interior Workshop was *Human-Centered Interior Technology.* This includes HMI (human-machine interaction); 'smart' surfaces; safety and driver monitoring systems; interior lighting; comfort and wellbeing; materials and sustainability with impact on design; comfort; cockpit; seats, dashboard; screens, and HVAC.

The topics were divided into six Sessions, each with three or four presentations followed by Q&A opportunities with the presenters. Questions could be asked directly to the speakers or—newly—also electronically transferred to the screen with the help of a QR-Code (Slido). This new method led to many interesting questions, answers and discussions.

Q&A PLATFORM WITH SLIDO QR-CODE FOR QUESTIONS (DVN-I IMAGE)

The Workshop started with a keynote from Dr. Martin Enders, projects innovation manager at BMW Group. His talk was entitled "BMW i Vision DEE - Next Level Human Car Interaction - Circular - Electric - Digital", and illustrated with interesting light samples.

Keynote speakers from Forvia on the second day of the Workshop, Andreas Wlasak (VP Design) and Tony Allison (Product Manager) spoke about "Lumieres & Enlightment Personalising the Third Place", and Liux CEO Antonio Espinosa de los Monteros presented "The First Ever Plant Based Vehicle".

Sessions 1and 2 dealt with HMI and smart surfaces, with eight presentations on these topics from different perspectives:

- Antolin: Demetrio Galindez, Senior Product Manager: "Smart Surfaces for Human Machine Interface"
- Marquardt: Felix Hake, Product Management/Innovation Lead: "Potential of Printed Structures for Smart Surfaces"
- Ansys: Gwenael Moysan, Application Engineering Manager: "Heads-Up on the road ahead - Future of Simulating Displays and HUD with Ansys Optics"
- Grewus: Elisa Santella, Managing Director: "Integration of active haptic feedback in automotive HMIs"
- Forvia: Patrick Nebout, Cockpit Chief Technology Director: "A journey of activated surfaces towards efficient HMI"
- PolyIC Kurz: Dr Wolfgang Clemens, Product Management & Business Development Director: "Smart decorated Plastic Surfaces with integrated Touch Sensors for HMI Applications"
- TITV: Kay Ullrich, Smart Textile Systems Group Manager: "Textile-based sensor concepts for control modules in the automotive interior environment"
- FLT: Björn Sobischek, Managing Director: "New Automotive Heating Solutions on Paper, Foils and Textiles"

Session 3 focused on safety and DMS with three lectures:

- Yole Group: Pierrick Boulay, Lighting and ADAS Senior Analyst: "OMS/DMS Technology Evolutions and Roadmap"
- Pontosense: Alex Qi, CEO: "The biggest hidden trend in automotive, In Cabin sensing"
- Rheinmetall Dermalog SensorTec: Dr. Björn Sondermann, Chief Engineer Interior Sensing: "Sensor fusion for a holistic in-vehicle safety solution"

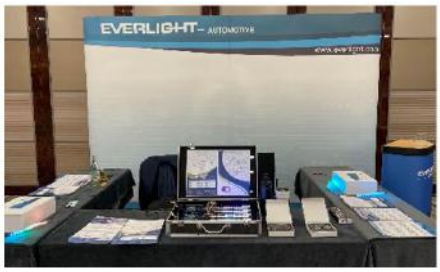
Sessions 4 and 5 covered interior lighting—a wide field discussed with eight lectures:

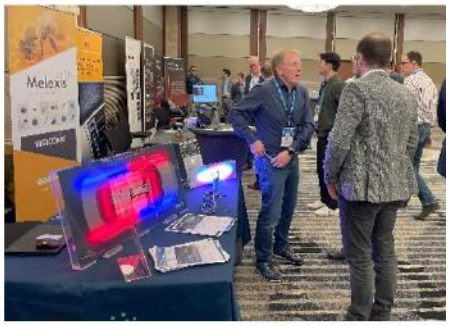
- Volvo: Johan Persson, Interior Illumination Technical Expert: "EX90 interior lights"
- JLR: Lydia Hewitt, Lighting Attribute Group Interior Lighting Leader: "Modern Luxury Interior Lighting"
- AMS Osram: Michael Brandl, Automotive System Solutions Engineering Director: "Enabling new dynamic and colorful lighting by using intelligent RGB LEDs with Open System Protocol"
- Tactotek: Karthikesh Raju, SVP Product Management and Marketing: "Let Light Live - IMSE Light Channels an innovative platform to develop dynamic, interactive and functional light interfaces"
- TechnoTeam: Dr. Udo Krüger, CEO: "Imaging Luminance and color measurements for backlit symbols and light guides - Aspects of data acquisition, evaluation and conformity assessment"
- Melexis: Roland Steger, EMEA Business Development Manager: "Solutions for the increasing complexity of functional and safety relevant interior and exterior lighting systems"
- Seoul Semiconductor: Aleksandar Drobnjak, Senior Technical Marketing Manager: "Re-Discovering Cabin Illumination under Natural Light"
- Uni Pforzheim: Professor Dr. Karlheinz Blankenbach: "Improving Traffic Safety by Directional Augmentation via RGB LED Matrix Display"

Session 6 was for presentations on materials and sustainability.

- Dow: François de Buyl, Scientist, MobilityScience: "Material Science for Durable, Safe and Comfortable Car Interiors"
- Mocom: Eric Möller, Product Specialist: "Polymer diversity and sustainable Compounds for lighting technology"
- Grammer: Marco Redwitz, Advanced Development Director: "Center Console – Strategy for a green product"
- Novem, Dominique Heilborn, Light & Function Director: "Navigating Changing Market Requirements: UX, costs and sustainability"

Exhibitions:





The exhibition area was combined with the coffee and snacks corner, an ideal place for personal or technical discussions, presentations and networking relaxed over coffee and cake.

Everlight; AMS Osram; Seoul Semiconductor; Dow; Melexis; Grafe; TechnoTeam; Lightworks, and Pontosens presented and explained their latest products and technologies.

A highlight of the first workshop day was the DVN Interior Ceremony Awards in the evening.

Best interior lighting innovation: Volvo Cars with Johan Persson.

Best materials / sustainability innovation: Grammer AG with Marco Redwitz.

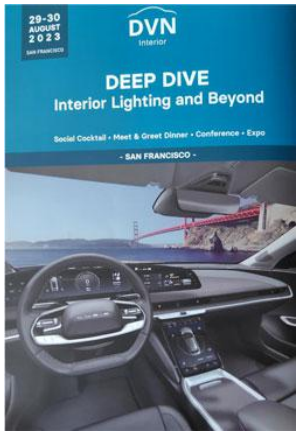
Best HMI / smart surfaces innovation: PolyIC Kurz with Dr. Wolfgang Clemens

The DVN-I Team heartily congratulates all winners and participants!

WINNERS OF THE DVN INTERIOR AWARDS (DVN-I IMAGE)

The DVN-I Team hopes you enjoyed the 3rd DVN-I Workshop. We thank all participants; speakers, and organizers for their contributions to make the Workshop interesting and successful.

The next DVN-I Workshop is planned for August 29-30 in San Francisco. The theme: Deep Dive: Interior Lighting and Beyond.



THE DVN-INTERIOR TEAM IS LOOKING FORWARD TO WELCOME YOU IN SAN FRANCISCO!

Interior News

Mercedes-Benz Reveals 2023 GLC Coupé

INTERIOR NEWS

MERCEDES-BENZ IMAGE

Mercedes-Benz revealed their second-generation GLC coupé. The dashboard is clearly structured. The upper section has a wing-like profile with new, flattened vent outlets. The lower section has a generous trim area that flows seamlessly into the curved centre console. The 12.3-inch (31.2 cm) high-resolution LCD screen in front of the driver appears to float freely above the wing profile and trim surface. The 11.9-inch (30.2 cm) central display rises from the centre console and likewise appears to float above the trim surface.

The seat design plays with layers and contoured surfaces, lending them visual lightness. Offered as a special feature is a leather-lined dashboard with nappa-look beltlines. Some trim elements have innovative surfaces. These include interpretations of open-pored wood veneers in brown, anthracite and black, featuring aluminum inlays.

The Hey Mercedes intuitive voice assistant is increasingly effective in responding to natural language and user preferences. Music streaming services can be seamlessly integrated into MBUX, including personal settings, allowing customers to enjoy a personalized music experience in the vehicle. Additional information is provided by the audio Tourguide, which is part of the "MBUX Voice Assistant" from Mercedes me. In response to the voice command "Hey Mercedes, start Tourguide", the MBUX infotainment system reads out information about points of interest along the route. The system responds to the approximately 3,400 brown signs along German motorways. The MBUX Smart Home function allows customers on the road to access smart home systems, for example to monitor and adjust temperatures, lighting, blinds or electrical appliances.

The new GLC coupé is a pleasantly quiet vehicle with a serene sound signature and low rolling and wind noise. This is achieved with acoustic optimization of the bodyshell and sound insulation. An acoustic membrane in the windscreen is standard equipment.

The Air-Balance package is part of the Energizing Plus package. It offers an individual, subtle fragrancing experience in the interior, according to personal preference and mood. At the same time, the outside and inside air is ionized and filtered. The Energizing Air Control feature continuously monitors air quality in the vehicle interior using air quality and fine particle sensors. If thresholds are exceeded, it switches the air conditioning to air recirculation mode. A two-stage filter concept can additionally filter fine dust and a large proportion of pollutants from the air.

2024 Nautilus: Next Course for Lincoln

INTERIOR NEWS

LINCOLN IMAGES IN THIS ARTICLE

Lincoln's 2024 Nautilus boasts a flowing, horizontal instrument panel integrated into the immersive display—the largest in its class. It features a massive 48-inch combined instrument cluster and information screen extending across the entire dashboard, backed by a smaller, traditional center stack touchscreen.

The cabin incorporates new ambient lighting along with crystal-inspired details throughout the vehicle that capture the essence of seeing sun reflected on water: a piano-key shifter; instrument panel toggles and audio knob that shimmer. The Nautilus 'awakens' with a new animated-light schtick starting at the center of the new display, flowing out into the front and rear door panels. A flat-top steering wheel allows clients to see over, not through the wheel, giving an overall effect of openness.

The new in-vehicle digital experience brings more customization, making navigation and music even more effortless. Clients will also be able to enable Android Auto and Apple CarPlay features through wireless connections. Alexa Built-in makes it easy to control vehicle features and smart home devices with the same voice commands used at home. While stationary, vehicle occupants can boost productivity with calendar and route planning.

Over-the-air software updates are designed to help make the Nautilus better over time with new and enhanced features through its 5G network capability, delivering ultra-fast internet connection to power entertainment experiences.

Driving assistance is provided by version 1.2 of Ford's award-winning BlueCruise suite which allows for hands-free highway cruising; automated lane-changing with a tap of the turn signal stalk, and natural lane positioning.

Immersion-Motrex License Pact for Interfaces

INTERIOR NEWS

IMMERSION IMAGE

Haptics developer Immersion has signed a multi-year license agreement with automotive solutions technology manufacturer Motrex to provide haptic technologies for Motrex's in-car safety information; driving data, and passenger entertainment systems.

The high-quality touch feedback technology from Immersion is used to enhance in-vehicle interfaces and applications. The use of haptics within vehicles continues to increase, as automakers seek to incorporate high-quality tactile effects for operations including infotainment, navigation and climate control.

We are increasingly seeing more new car models adopting haptics across various interfaces throughout the cabin," said Nobumitsu Shimada, representative director, Japan, and VP, APAC, Immersion.

Marelli's 'Cabin Digital Twin' for Cloud Services and More

INTERIOR NEWS

MARELLI IMAGE

At the Shanghai Auto Show, Marelli showcased their cabin digital twin technology DigiMate. The end-to-end infrastructure has been designed to replicate cabin hardware and software to speed up vehicle software development, while simultaneously reducing costs and time to market for automakers and their innovations.

DigiMate will enable automakers to bring connected-vehicle services to market more efficiently as the technology has been designed to streamline simulations, validation and testing activities, eliminating the need for multiple physical cabins.

The virtual cabin replica can run thousands of instances in parallel on the cloud, greatly reducing development timelines, and enables more cost-effective over-the-air software updates. This means makers can respond quickly to customers' requests while reducing time to market for new software updates.

In the initial DigiMate application, QNX Neutrino Real Time Operating System (RTOS) has been integrated to run natively on Amazon Elastic Compute Cloud (Amazon EC2) instances, powered by Amazon Web Services Graviton2 processors.

"Enabling our customers with our foundational QNX software products in the cloud is a game changer for embedded developers as they will have easy access and scale available at their fingertips," said BlackBerry QNX's product management and strategy VP Grant Courville.

Continental's Cosma Spots Forgotten Children

INTERIOR NEWS

CONTINENTAL IMAGE

Continental has integrated child presence detection into their Cosma digital access solution. The left-behind child detection function uses ultra-wideband technology and sends out a warning signal within seconds. It was developed in context of new safety requirements to be phased into Euro NCAP and U.S. regulations by 2025. With the Cosma ultra-wideband access system, the smartphone becomes the car key. The broadband system operates in reflective mode for presence detection. It receives back the ultra-wideband signals that have previously been sent out by micro-movements of an object.

By detecting a change in frequency or phase of the returned signal, the distance and speed of the moving target can be measured and even the smallest movements such as a child's breathing can be detected. Based on specific breathing frequencies and micro-body movements, the ultra-wideband detection function is able to distinguish between infants, children and adults. In the case of children left in the vehicle, it sends an audible, visual or haptic warning to the driver after ten seconds at the latest. This detection function can recognize children in any seating position, even if they are covered or in the footwell of the cabin.

Toyota Mirai Presents New Interior Features

INTERIOR NEWS

TOYOTA IMAGE

The Toyota Mirai's 12.3-inch touchscreen display is a blank canvas that can be customized. It's easy to set up with favorite apps, and with such a large display, two screens can be viewed simultaneously. Drive Connect with cloud navigation is also standard for the first ten years, so vehicle users can follow directions while passengers create playlists.

Available Panoramic Monitor helps to check the surroundings for hazards. It uses four cameras, one on each side of the vehicle, to display a panoramic view on the touchscreen display. With the vehicle parked and using the Moving View setting, an animated virtual view from above is presented to give a bigger picture of the vehicle's surroundings.

Connected to a camera on the trunk, Mirai's available digital rearview mirror with HomeLink allows an unobstructed view—users can zoom in, zoom out and adjust the mirror to better see what's behind.

A smartphone can be placed on Qi wireless charging pad and it starts charging instantly, no power cords required. In the cockpit, a media USB port connects to the Mirai's audio system, to share a new album or play a favorite podcast by simply pressing play.

Toyota Teammate is a suite of advanced driver assistance technologies with Advanced Drive and Park. Advanced Park makes parking as easy as pressing a button, and Advanced Drive is designed to work with the driver to promote safe and comfortable driving on mapped and limited-access highways.

VW in Infotainment Pact with Thundersoft

INTERIOR NEWS

VW IMAGE: SMART COCKPIT CONCEPT

Thundersoft is known in China for their operating system technologies in the mobile; IoT, and automotive sectors. Their joint venture with VW will focus on developing and testing software for connectivity and infotainment. This will include writing software for car operating systems, human-machine interactions in the cockpit and cloud applications. The applications are to be integrated into VW's existing infotainment system. VW is reportedly investing a mid-double-digit million euro sum in the cooperation.

VW wants to achieve more speed in infotainment through a new cooperation. The partnership with Thundersoft is an important step in accelerating VW's digital transformation in China and "developing more tailored innovations in China for China," explained Ralf Brandstätter, who is responsible for VW's business there.

The infotainment sector is extremely important in China, and it is something German carmakers have long neglected. Unlike in Germany, entertainment apps in the vehicle, from movie streaming to karaoke machines, are a key purchase criterion for Chinese buyers.

The Design Lounge

Urban Mobility

By Athanassios Tubidis

THE DESIGN LOUNGE

DVN IMAGE

Besides the architectural landmark, the Orsay museum in Paris is one of the most prestigious Art locations in the world. The unforeseen evolution of the historical building to a museum is a tail that makes it equally a symbol of urban mobility, way before the term was even invented.

Despite its central location, the structure itself is a train station! Back then, when steam locomotives were coating terminals and close-by buildings in coal soot, dirty trains were typically kept at the outskirts of a city. The World's Fair of 1900 though, drew great amounts of people to the city center and the need of transportation was imminent. However, coal and its black misty funk were not matching the glamour of the city of light, neither the expectations of the world's VIPs joining the event. Thus, the trains would replace their polluting steam engine with an electric one, out of town, in order to continue their trail to Paris city center, close to the main attractions. As a result, one of the early notions of multimodal mobility was established involving cleanliness and walkability, implementing steam and electric powered transport arrangements all the way to a flawlessly mastered pedestrian urban scape(Haussmann's 1864 renovation of Paris). Contrasting any preconceived idea of train terminals, the building always remained clean, far from sooty black smoke. One Edouard Detaille stated, "*this train station is clean like a museum, pity that most of our museums today (1900) look like train stations*".

The phrase was prophetic. As technology advanced, the station's platforms could no longer accommodate the larger, modern trains, subsequently causing the station to close in 1939. It was transformed and opened as the Musée d'Orsay in 1986. Today, housing the world's largest collection of Impressionist paintings, gives a better definition of the traveling experience to the capital's city center as an environment where light and reflections play their primary role combined with motion and technical prowess. The train station clocks remained installed over the art collections as a reminder of its past. And the glass roof, that has never been darkened by engine smoke, is still performing the same light reflections over visitors that traveled the world to see some of the most amazing artworks.

Impressionism originated with a group of Paris-based artists and is characterized by emphasis on accurate depiction of light in its changing qualities, accentuating the effects of the passage of time. Movement is included as a crucial element of human perception and experience.

Better shaping the future of the traveling experience in city centers (aka urban mobility) is like becoming rebellious against classical transportation systems, embracing modernity with the desire to create works that reflect the world we live in. Equally, describing moments in time, with light and color, providing definition instead of black charcoal pencil lines drawing a parallel to predefined trajectories. I find our mobility story curiously similar to Impressionism!

News Mobility

Chinese 'Megacity Cluster' as AV Test Track

NEWS MOBILITY

HUANGPU EUROPE IMAGE

Due to a well-developed and networked automotive industry and low costs for vehicle test licenses, the huge 'megacity cluster' is a suitable location for companies involved in fully automated driving. According to the European branch of the Huangpu District based in Heidelberg, Germany, there are numerous production sites' parts suppliers, and startups in the region.

Autonomous driving companies working there include We Ride; Baidu Apollo, and Pony. We Ride already has permits to test autonomous vehicles on public roads in the U.S. and in Guangzhou.

The Greater Bay Area is also suitable for testing because of its challenging traffic situation, which Huangpu Europe said makes autonomous driving "many times more complicated than in Silicon Valley, for example." Test drives are said to have become up to 30 times more efficient as a result.

Since September 2022, the Chinese government has been promoting innovations and 18 pilot projects for "intelligent" transport in Guangzhou as part of its post-Corona policy and relaxed regulations. In addition, public acceptance of the topics is also to be increased. The goal is to have 260 autonomous vehicles, including 50 buses, in operation on public roads by the end of 2023. The driverless buses are expected to complete one million passenger trips in the process. Guangzhou would also have a government-funded pilot zone for artificial intelligence and digital economy. From August 2022 to December 2023, a total of around four million test kilometers would be covered by autonomous vehicles here.

In addition to autonomous driving, other technologies are also being developed in the Greater Bay Area, according to Huangpu Europe. For example, there are centers for drone construction, a center for sustainable technology, and universities. Companies such as Huawei, ZTE, Tencent (We Chat), We Bank, Royole, UB Tech Robotics and DJI have already set up shop in the region. By 2030, the "world's largest megacity cluster" is to be created on an area of 56,000 square kilometers.

Mobility Congress in Madrid

NEWS MOBILITY

IFEMA IMAGE

The Mobility Congress in the Spanish capital aims to bring together companies, institutions, associations and experts for an exchange on energy saving and sustainable mobility. The second Global Mobility Call around sustainable mobility will take place in Madrid from 12-14 September, 2023. As the two organizers Ifema and Smobhub announced last week, up to 10,000 professionals attending in Spain and up to 15,000 more digital participants are expected.

Among the participants are important companies and associations from the energy sector such as Cepsa, Iberdrola or Totalenergies, from the transport sector (Consorcio de Transportes, EMT and Metro de Madrid), from the multimodal mobility sector (Adif, Aena, Arriva, Enaire, Iberia, Puertos del Estado, Renfe and Senasa), technology providers (Etra, Indra, Ineco and Sistem) and infrastructure specialists such as the National Geographic Institute.

The second edition of the Global Mobility Call coincides with Spain's presidency of the Council of the European Union, which begins July 1. The Ministry of Transport, Mobility and Urban Agenda intends to organize two parallel events during the Congress: the Technical Conference on Mobility in Rural Areas and a meeting of the PEP Partnership for Active Mobility.

General News

Why China's Automakers Are So Successful at Home

GENERAL NEWS

AUTHORS ANDREAS HERRMANN AND ZHENG HAN

German car companies are not making any headway in the important Chinese market for e-cars. They can learn a lot from Chinese rivals, say Andreas Herrmann and Zheng Han. The aim is to understand the strategic building blocks based on which the Chinese competition is planning its global rise. Six points are particularly important here:

• **Digital first**

For Chinese manufacturers, the car is not just a means of transport, but a lifestyle product. With this focus, they aim to attract the many young 'digital natives' in China and abroad as customers. The Chinese car brands lead the JD Power China Tech Experience Index in both the luxury and mass segments.

• **Focus on new customer segments**

Chinese manufacturers are keen to identify ever new customer segments and serve them with precisely tailored products.

• **No assets**

Chinese automakers are focusing primarily on research and development, design, and brand. They outsource production wherever possible in order to ensure a high rate of growth and conserve capital. They prefer direct and online sales, without major investment in a dealer network.

• **Think globally**

For example, Nio and XPeng have research and development centers in various locations around the world, and in particular in Silicon Valley, where the best minds in e-mobility and autonomous and connected driving are located.

• **Monetization of services**

Innovative pay-per-use models for e.g. renting a battery, reduces the price of the vehicle, and removes the customer's uncertainty about the resale price of the car. For example Tesla; XPeng, and Nio offer their driver assistance systems in a subscription model.

• **Breaking down industry boundaries**

Chinese manufacturers do not hesitate to cross industry boundaries. For example, the Chinese smartphone manufacturer Xiaomi has announced their intent to enter the electric vehicle market. The vehicle is scheduled to be launched on the market as early as 2024. XPeng is interested in Urban Air Mobility, and first test flights are completed. Geely and Volocopter have agreed on a joint venture for China, etc.

The Largest Electric Car Manufacturers in the World

GENERAL NEWS

TESLA MODEL S (NETCARSHOW IMAGE)

Tesla was once again the world's largest electric carmaker in 2022. With 1.35 million pure electric cars, the U.S. company grew by 45 per cent compared to the previous year. According to data from the consulting firm Inovev, the new global number two is the Chinese BYD Group, which tripled output to 920,000 units produced, pushing General Motors into third place. The U.S. automaker built 680,000 e-cars, thanks mainly to its China subsidiary Wuling.

The VW Group also was surpassed by BYD, with 520,000 units ahead of Volvo parent Geely (360,000) and Renault-Nissan (340,000). If partially electrified plug-in hybrids are included, BYD dominates the electric car business with a total of 1.86 million vehicles built. Tesla (1.35 million), Volkswagen (750,000) and GM (690,000) follow at a great distance.

In the European market, BYD only started making inroads last year. In 2022, the Volkswagen Group was the market leader in the EU and the United Kingdom, with nearly 350,000 e-cars sold. The Wolfsburg-based company positioned itself ahead of Tesla with 232,000 and Stellantis with 230,000 new registrations. All Chinese brands together accounted for just under 62,000 units; however, they achieved the strongest growth with an increase of 129 per cent.