Thu, 12 October 2023
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #182

# Editorial

## Smart Cockpit: The Centerpiece Of Digital Mobility

HIPHI X

With the continuous development of relevant hardware and software, the cockpit is becoming 'smart', pivoting—at least in marketing terms—from a functional area to a *user experience*. A smart cockpit is not only a display, even with larger screen or multiple screens, it is about a complete immersive experience for the user, including smart surfaces all around, lighting, voice and gesture control, and so very much more. Most new vehicle cockpits are growing in this direction by leaps and bounds, and all new Chinese vehicles coming to the Western markets have innovative features in their cockpit. That's what we look at in this week's in-depth piece.

As the smart cockpit is becoming more and more the centerpiece of the car interior, it represents the interior of the future. That's the topic we have selected as the theme for the 2024 DVN-Interior Workshop, along with new features and emerging technologies. Save the dates: 23-24 April in Köln. We will tell you more as we get closer to the event, and if you want to be a speaker or an exhibitor, you'll receive the first flyer very soon.

We're looking forward to see you at the 2024 Workshop!

Sincerely yours,

Philippe Aumont
*DVN-Interior General Editor*

# In Depth Interior Technology

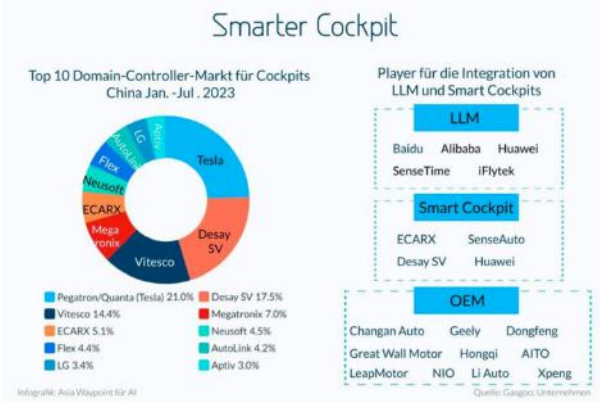
## China Leads in Smart Cockpits, Large Language Models in Cars

GEELY IMAGE

Let's take a look at China's leading position in smart cockpits, including Ecarx and Forvia/Chery as a bridge example between east and west.

In a software-defined car, a smart cockpit brings a personalized interaction experience to users by integrating one core, multiple screens, and multiple systems: voice recognition, gesture control, LCD instrumentation, HUD, DMS, ADAS integration, and so on.

According to a report released by patent research firm PatSnap last year, globally there have been 193,000 patent applications related to intelligent cockpits. China owns 82,300 of those applications, accounting for 43 per cent of the total and ranking first worldwide. That country, then, has become the most important market for intelligent cockpit technology, according to the PatSnap report. The high number of relatively young, technology-savvy drivers in China is one driver of this primacy.




DOMAIN CONTROLLERS AND THE LARGEST COMPANIES USING LLM-AI TECHNOLOGIES (ASIA WAYPOINT)

In terms of perception, the cockpit display is not limited to screens; many other interactions are also emerging. HMI design is focusing on UX, (user eXperience, and developing from functional perception

interaction to cognitive and active interaction through artificial intelligence and in-car and out-of-car perception technologies.

smart cockpits are designed around the idea of human-oriented user experience, and personalization is a major development trend. In addition to basic custom settings (button assignments, display choices, etc) the software architecture can help realize the personalized custom settings of multiple scenarios in the car. For example, the WM W6, launched at the Shanghai Auto Show in 2021, realizes personalized combinations and settings of scenarios based on service-orientated architecture, with in-app custom programming.

## Smart cockpit solutions

MERCEDES IMAGE

**Recent popular examples include the Mercedes-Benz MBUX Hyperscreen: three displays merged almost seamlessly to create an impressive screen band over 141 centimeters wide: the 12.3-inch driver display**; 17.7-inch central display, and 12.3-inch passenger display appear as one visual unit. Three screens sit under a common bonded curved cover glass. For particularly brilliant display quality, OLED technology is used for the central and front passenger displays. It can display the desired personalized functions for users on the main interface of the central screen at an appropriate time, enabling zero-layer operation without scrolling or turning pages, bringing a relaxed and less-frustrating HMI experience.

**The BMW iX with its iDrive 8, meanwhile, has a horizontal curved dual screen:** a 12.3" LCD cluster screen and 14.9" IVI screen slightly angled towards the driver. BMW says the screens have a pixel density of 206 pixels per inch (PPI).

In China, automakers have launched a number of models equipped with multiple screens and joint screens. The Hongqi E-HS9 was equipped with 8 screens in 2020. In 2021, Human Horizons produced the HiPhi X with 9 screens. At the same time, the screen size in the car is getting larger and larger. The center console of the Xingyue L, launched in July 2021, has a 1-meter 'IMAX' screen. The IM L7 has a 39-inch smart scenario screen and a 12.8-inch AMOLED center console screen. The 39” screen is composed of two joint screens, which can be raised and lowered separately with multiple display modes, and allow the content to be switched without boundaries.

FORD EVOS (FORD IMAGE)

The center console of the Ford EVOS, launched in 2021 as a China-market vehicle built by the Ford-Changan joint venture, features a 27-inch 4K display. The Cadillac Lyriq, launched in 2022, has a 33-inch all-in-one display.

Through fusion applications of artificial intelligence, interior lighting, smart surfaces, audio, smart seats, consoles, and other products and technologies, voice recognition, AI assistants, face/fingerprint recognition, gestures, vital signs detection, and other HMI technologies and models have become available in cars. The smart cockpit has certain HMI experience and scenario-based capabilities, and the cockpit scenario interaction is less mechanistic and more emotional.

The HiPhi X can recognize the driver's expression, voice, heart rate, blood oxygen, blood pressure, breathing rate, and more through 52 biosensors, then adjust music and HVAC to values it determines the human occupants must obviously want, or even take over the vehicle in dangerous situations.


As we previously reported, Samsung exhibited a digital cockpit at CES 2021 equipped with Automotive Samsung Health, which analyzes passengers' health status with a combination of cameras and wearable and mobile devices installed in the vehicle. In the car, it also regularly monitors passengers' stress levels and will adjust the vehicle's lighting, scent, or music in ways it determines will help them relax.

CHANGAN YIDA (CHANGAN IMAGE)

More and more carmakers in China are integrating ChatGPT-like software into their cockpits. One of the first adopters is Changan, who put "Ernie Bot", Baidu's copy of ChatGPT, in their Yida sedan via software updates this past March.

Voice recognition became an important dimension of HMI and smart cockpits (as we've reported), with LLM (large language models) giving a new dimension. Much more than a voice assistant, LLMs are being integrated with domain controllers for this purpose.

Chinese AI company SenseAuto recently touted what they called multi-sensor fusion perception for their latest cockpit product at IAA Mobility in Munich. Based on the company's "SenseNova" LLM, it promises to make the car safer with a "smarter decision-making system for the car's brain". So LLM not only changes HMI, making it more interactive and personal, but also promises to improve autonomous driving functions by making faster and better decisions.

Car manufacturers and AI software providers in China are currently experimenting with the new possibilities. Like the cooperation between Microsoft and Mercedes-Benz for ChatGPT, they want to integrate large language models with the smart cockpit and domain control in cars as soon as possible.

Leading suppliers in this new industry in that part of the world include Pegatron and Quanta, two Taiwanese contract manufacturers for Tesla. Among the suppliers from China, Desay SV is an important one. They supply Li Auto, Chery and Neta, among others. The business of Chinese companies Megatronix, Ecarx, Neusoft Auto Link, and Huawei's car division is also growing now.

Desay SV's European headquarters is in Weimar, Germany, and specializes in antennas and automotive electronics, with three segments: electronics and antenna solutions, antennas and accessories for the mobile and stationary aftermarket, and testing, analysis and optimization of antenna systems.

## Ecarx


ECARX IMAGE

Ecarx was founded in 2017 by Geely founder Eric Li. They develop hardware and software solutions for infotainment head units (IHU), digital cockpits, vehicle chip-set solutions, a core operating system and integrated software stack. The company is one of the technology partners in Baidu’s Ernie LLM, for intelligent cockpit application exploration. Ecarx seeks to bolster its technological prowess by incorporating the capabilities of the LLM into their integrated intelligent ecosystem.

Ecarx and Baidu have explored the application of LLM capabilities in in-vehicle interactive scenarios, resulting in the verification of multiple innovative functions on Ecarx’s computing platforms. Soon, these advanced features are expected to be integrated into certain mass-produced Lynk & Co models.

Baidu’s Ernie LLM, now in version 3.5, has seen a 50-per-cent boost in performance, a doubling of training throughput, and a 30-per-cent enhancement in inference performance compared to the previous version. Now Ernie is primed for in-vehicle scenarios. Baidu Apollo’s efforts in special training and fine-tuning of the model have expanded its potential applications, including travel planning, car consultants, knowledge Q&A, and inspiration painting, all designed to meet users’ in-vehicle needs through interactive human-machine interactions and intergenerational innovation.

This strategic collaboration is offering consumers more intuitive and seamless interactions within intelligent cockpits, while giving automakers a competitive edge in creating differentiated value propositions.

## Forvia and Chery

FORVIA'S 'COCKPIT OF THE FUTURE' (FORVIA IMAGE)

As a bridge between China and the rest of the world, Forvia and Chery signed a strategic cooperation agreement to establish a long-term strategic partnership, especially in the field of smart cockpits.

Both parties will jointly develop a smart cockpit software and a hardware platform integrating Forvia's products and technologies. It will be integrated in Chery vehicles, to create an in-vehicle and out-of-vehicle systematic, integrative, and intelligent user experience. In addition to deepening business cooperation, both companies will establish 'dual-carbon' and ESG goals, jointly promoting green and sustainable development.

Forvia is mastering an extensive range of solutions from materials, comfort, advanced technologies for customization and intuitive interactions, to zero emission and new modular business models, all to be able to create a versatile 'third place'—that is, a third living space besides one's living room and office as showcased through the company's recent Lumières show car interior at CES and IAA.

Forvia CEO Patrick Koller says "China is a cornerstone of Forvia's global presence, boasts nearly 30,000 employees across 95 sites in 30 cities. It's a technological stronghold, a hub of innovation in electric mobility".

# Interior News

## Adient Seat Innovations for Sustainability, Safety, Comfort

INTERIOR NEWS

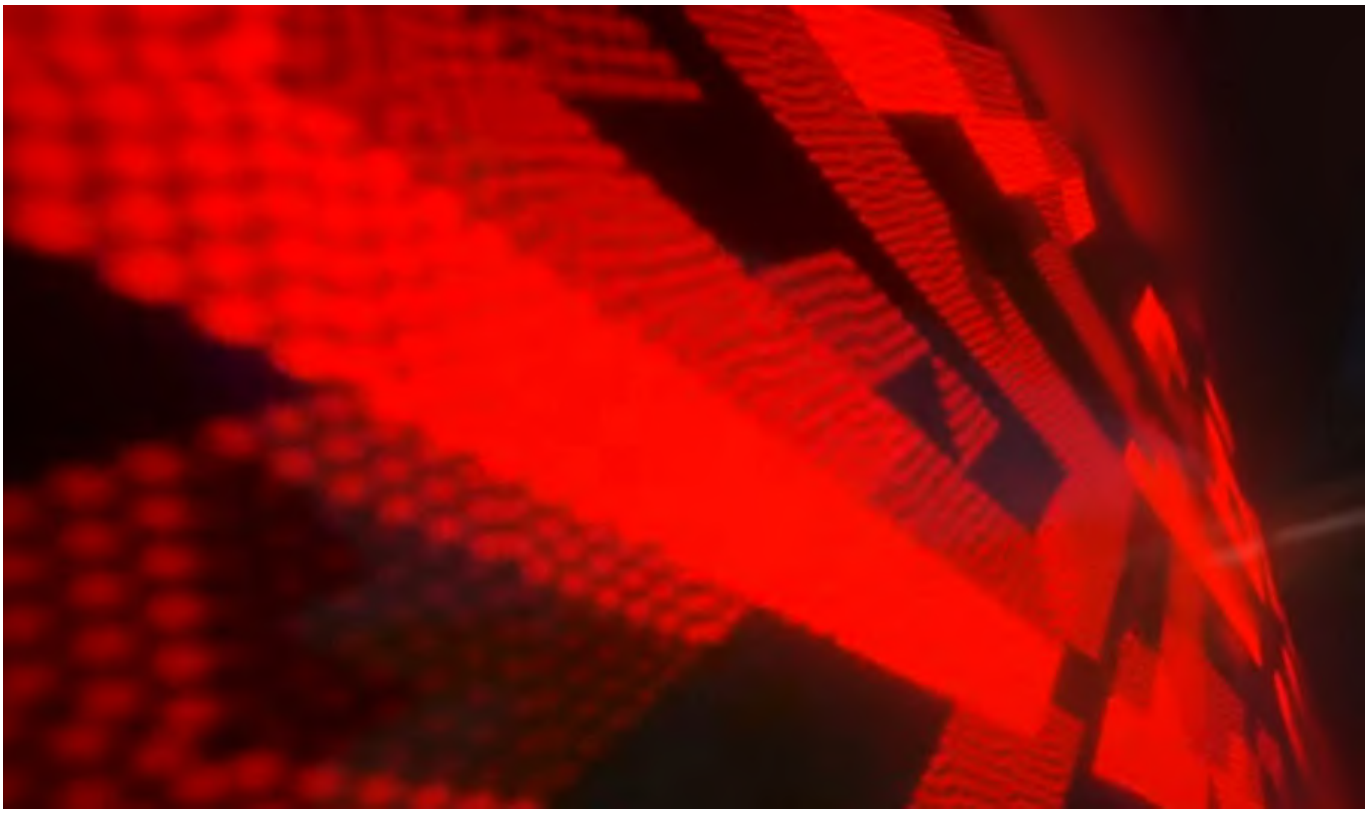

Adient, one of the main suppliers for automotive seating, presented their latest innovations around the IAA this year. The company's overall approach is characterized by responding to the need for more **sustainable material use**, while taking advantage of the potential that sustainable practices hold for streamlining processes. Responding to the need for overall cost and **complexity reduction** in manufacturing, their *Pure Essential* seat is especially lightweight. Environmentally-conscious practices such as material separation and recycling, and design for disassembly are embedded into the manufacturing process from the development stage. The visionary seat consists of just two materials: green steel and recyclable polyester (PET).

New customer needs in terms of premium **comfort**are met with their *Autonomous Elegance* seat, specifically developed to work with ADAS.  State-of-the-art findings on ergonomics and human kinematics have been incorporated, following extensive occupant research. They are complemented by advanced comfort assets such as noise cancellation and advanced climate functions. Most features of the seat can already be offered for sourcing, such as the metal structure and seat kinematics (adjustment functions and mechanisms).

Considering optimized use of space as well as sustainability aspects, the automotive supplier has also given their *Smart Efficiency* seat an update; it now features a slimmer **appearance** without compromising on comfort. This design helps save on space, and paves the way for new mobility concepts based on battery packaging in electric vehicles.

# AMS Osram's MiniLEDs on Foil

INTERIOR NEWS



AMS OSRAM IMAGE

AMS Osram has unveiled their Aliyos LED-on-foil technology. It is suitable for automotive exterior and interior lighting and can create three-dimensional lighting and animation effects. This can be used to display messages and information to drivers and other road users. The foil technology can also be used on curved vehicle surfaces. Aliyos technology enables mini-LEDs to be applied to a thin, flexible and transparent substrate with almost invisible metal leads.

The mini LEDs can be freely arranged in individually controllable segments in any shape. Typically, several miniLEDs are connected in series within one string and several such strings, in turn, are connected in parallel to fill the segment area. The number and position of the LEDs and the corresponding wiring has a large degree of freedom, and so can be used to form individually-addressable segments of any shape. The flexible LED foils can be part of a transparent stack, or applied behind translucent materials.

The miniLEDs can also be used to display symbols, words, images or abstract patterns for decoration, information, or warning. Multiple foil assemblies can be placed one behind the other to create new 3D lighting and animation effects. You can use it like a film, you can bend it, it can be homogeneous with an additional diffusive element, it can be pixelated, it can have a display appearance. A lot of new possibilities and interest for designers and stylists! The industrialization of the technology has begun. It should be possible to equip the first cars with Aliyos technology by the end of 2025.

# Swarovski Crystals Add Sparkle to Kurz HMI

INTERIOR NEWS

KURZ IMAGE

Plastic surface specialist Leonhard Kurz, in conjunction with Swarovski, has developed an HMI panel featuring an interface with color-matched crystals and integrated smart sensors.

Kurz's automotive sales manager Jörg Stierand says the panel, "in a day-night design reveals its secrets only after a closer look and never fails to create wow effects. The combination of gravure and silk-screen printing enables top-class surface designs, for example for metallization or real-carbon looks".

The HMI concepts demonstrated a variety of design options across three versions. ‘Lounge’ mode is characterized by a luxurious design in a subtle brown with shimmering gold effects. Certain areas in the middle of the golden surface light up in rich magenta, fiery orange or warm violet tones. The light and color designs can be changed using the touch control function integrated into the decor.

The ‘Dark’ mode has a sportier design and uses crystals in a smoked glass look. A classic black adorns the surface of the component. Backlighting effects conjure up special effects with atmospheric color highlights —for example, in bold red or fresh green.

The ‘Light’ mode relies on cool bright shades. The surface of the demonstration device boasts geometric patterns, which can also be highlighted with different light designs.

All versions of the HMI panel use crystals from Swarovski, which appear to be mirrored at first glance. 'Shy-tech' functionality means the integrated icons only become visible and reveal the stored functions when the user’s hand approaches.

Key to the HMI’s operation is the integration of capacitive sensors into the panel covering the crystals. Both the substrate and the sensors themselves are characterized by their high transparency, allowing the crystals to take center stage. The sensors—wafer-thin metal-mesh silver structures—are particularly robust and can be flexibly adapted to a wide range of component geometries. Two touch sensors are integrated into the panel. One operates the functions of the crystals via direct touch functionality and also serves as a proximity switch. Another slider operates the ambient lighting of the panel.

The design was made possible thanks to a print mold design (PMD) process from Burg Design. Using this technology, three-dimensional decors could be created with maximum design freedom thanks to a special injection molding technique. In addition, components manufactured using PMD can be provided with a range of backlighting effects.

# Mitsubishi + BlackBerry for DMS and Safety

INTERIOR NEWS


MITSUBISHI ELECTRIC IMAGE

Mitsubishi Electric's new automotive in-cabin system, FLEXConnect, will be powered by BlackBerry IVY, an edge-to-cloud vehicle data platform. The collaboration will marshal an array of sensor data to anticipate safety risks, reduce driver distractions, highlight potential driving hazards, and enable new consumer experiences.

Mitsubishi Electric's expertise is in electrical and electronic equipment in information processing and communications, space development, and satellite communications, consumer electronics, industrial technology, energy, transportation, and building equipment.

BlackBerry, based in Ontario, Canada, provides intelligent security software and services. The company secures more than 500 million endpoints, including over 235 million vehicles.

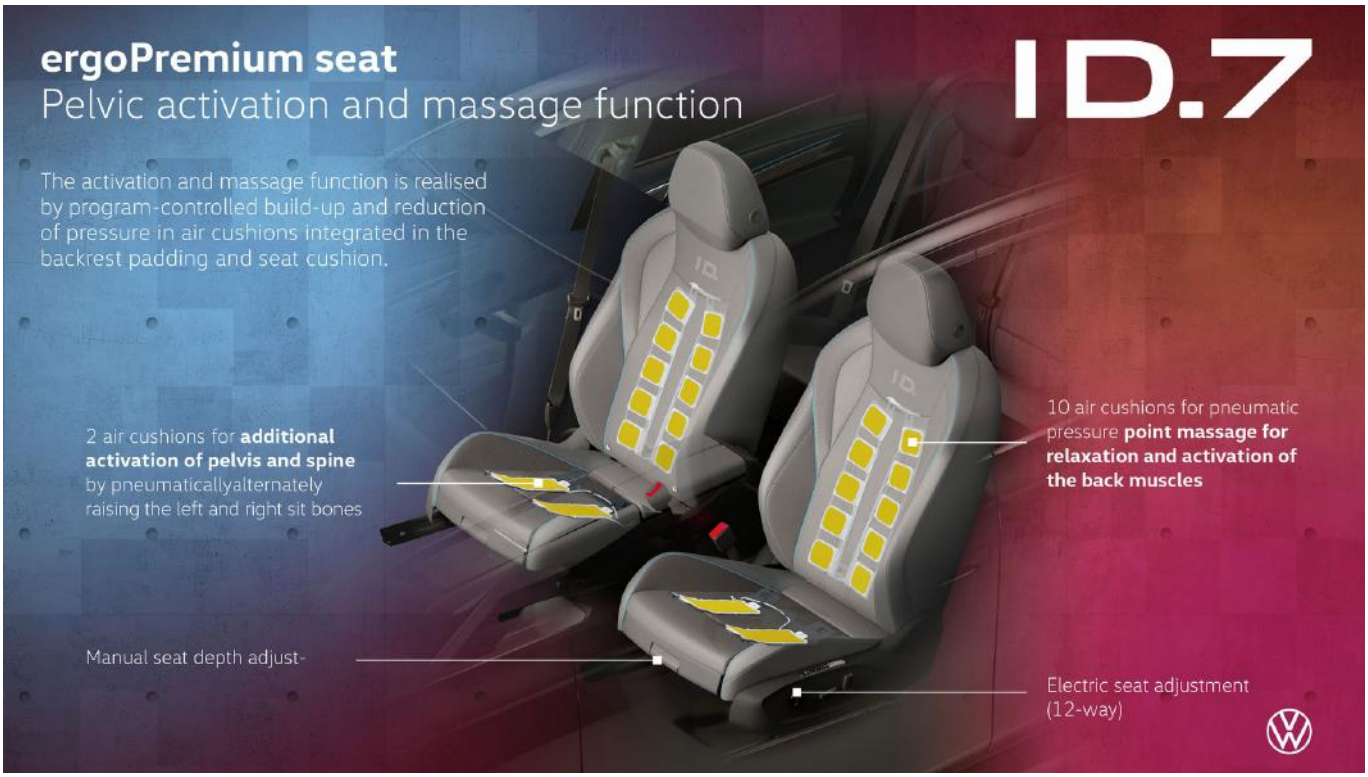
The FLEXConnect platform's core is its driver and occupant monitoring systems (DMS-OMS); BlackBerry IVY allows the platform to extract and analyze data from internal and external sensors and leverages machine learning to process all data collected at the vehicle edge computer node.

Safety features and consumer experiences powered by IVY in the FLEXConnect platform include:

- Determining driver distraction and concentration levels by detecting signs of drowsiness, estimating cognitive load, monitoring interaction with the infotainment system and more
- Collecting biometric information to provide insight into short- and long-term changes to a driver's physical status, such as health, triggering autonomous pullovers and alerts to emergency services.
- Analyzing facial features to create personalized identification profiles for automated verification to enable vehicle access and in-car payments.
- Correlating user preferences with environmental information, such as suggesting optimal parking locations based on preferences for cost, distance from destination, parking format and availability.

# 'ErgoPremium' Seats in VW ID.7

INTERIOR NEWS




VW IMAGE

Optimum travel comfort was one of the most important goals during the development of the ID.7, Volkswagen's first medium-large EV. The optional 'ergoPremium' seats, which have been certified by the German Campaign for Healthier Backs (AGR - Aktion Gesunder Rücken), combine comfort with innovative massage programs, automatic air conditioning, and an advanced activation function for spinal and pelvic muscles.

Designed in collaboration with orthopædic specialists, physiotherapists, and sports scientists from AGR, they are said to 'activate' the pelvis and spine. In addition to 10 air cushions used for pressure point massage in the backrests, this is primarily achieved by two air cushions in the seat. These cushions work alternately and, in combination with the massage function, can relieve tension and pain caused by sitting in the same position for too long.

Ulrich Kuhnt, consultant to AGR and Chair of the German Association of Back Schools, says, "Lifting up the sit bones tilts the pelvis. This then produces a slight rotation of the spine, which is additionally supported by the air cushions in the back. These small movements extend all the way up to the cervical spine. They prevent tension from building up and can even increase concentration". Vehicle occupants will also benefit from this in the long term, he says: "Torsion of the spine stimulates metabolic processes in the spinal discs. In combination with the stochastically controlled massage programs, this encourages back-friendly, dynamic sitting".

The two rows of five air cushions do pneumatic pressure point massage to relax and 'activate' the back muscles. Specific program sequences, lasting between 10 and 30 seconds, enable the massage function to be tailored to the user's needs. Electric 12-way seat adjustment and manual two-way seat depth adjustment with thigh support help front seat occupants to find their own preferred seat positions. A memory function also means positions can be saved.

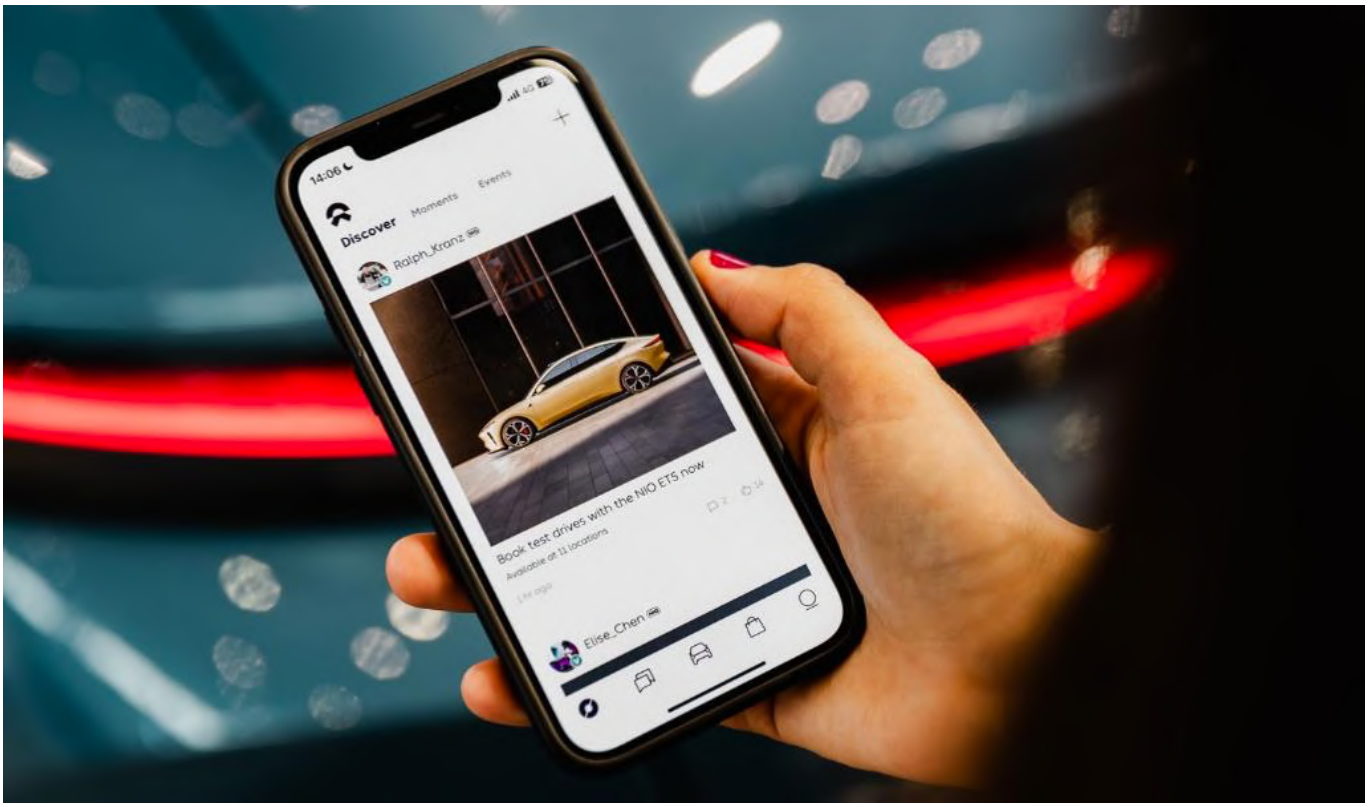

ON-SEAT CONTROL (VW IMAGE)

The seats also offer dynamic air conditioning, which controls the seat cushion and backrest separately from one another. The seat can therefore be heated and ventilated individually. The interaction between these functions means that, for the first time, each user's ideal seat temperature can also be created independently in automatic mode. To achieve this, the temperature and moisture levels are measured in the contact zone between the seat and the passenger and compared with other climate-relevant factors and preferred settings. This information is then used to calculate an individual optimum climate. In addition to automatic mode, users can also choose three climates: warm, dry, or cool. A heating and cooling function can help to increase occupants' wellbeing. The energy needed for this process is lower than the energy needed to adjust the temperature of the entire vehicle interior.

Several options are available for operating the seats: they can be controlled directly using buttons on the seat. In addition, the infotainment system display can be used to access the program for the seats. In the second-row seats, there are three settings for heating the seat cushions and backrests. This function is operated using buttons in the center console.

# Nio Launches Smartphone in China

INTERIOR NEWS




NIO IMAGE

EV maker Nio is offering their own smartphone in China with many control functions to Nio vehicles. The Nio Phone has more than 30 car-specific functions and a novel connectivity technology. With the device, a driver can unlock the car and drive forward or park automatically, Nio CEO William Li said at the product's presentation in Shanghai. According to Will Wong, an IDC analyst, Nio can benefit from the smartphone not only as a revenue generator, but as a medium for monitoring customers and harvesting their data. This, he says, is helpful in driving usability and retaining customers.

Nio's concept is to build a fanbase that remains loyal to the brand over the long term. To this end, there is a Nio Club with special products such as a branded wine.

Regarding the smartphone project, investors had expressed concern that the lossmaking carmaker could overreach. According to Li, Nio employs a team of 11,000 engineers who work on semiconductors, batteries, automation, and networking of cars. On the European market, Nio is trying to gain a foothold via car subscriptions.

# The Design Lounge

## EVs and Rockabilly

THE DESIGN LOUNGE

COFFEE CORNER
DVN
Interior

***By Athanassios Tubidis***

On February 27, 1911 in Detroit, an electric automobile starter was demonstrated on a Cadillac motor with a press of a button. In 1912, Cadillac put the electric starter on its Model 30, making gasoline engines easy to operate. The new invention changed everything in the world of motion.

QUEST/GETTY IMAGE

Indeed, prior to that, electric cars were popular. While the batteries were not as performing as today and road network wasn't as developed, most people were using cars as runabouts with the unequaled advantage of close to non maintenance. Once in the garage, they just had to unplug and go. Gasoline engines of the time being very unreliable and requiring a specific knowledge about how to make them run, e-cars had actualy competitive advantages. They were simple and relatively inexpensive to then standards. Unlike to gasoline engine cars of the day, one did not have to be an arm strong to crank start them over, risking to brake an arm, thus, e-cars were equaly apealing to women. People did not seem to share as much as today the range-anxiety since nobody had much range anyways. Road network, instead of modern-time highways, was limited and very muddy extending only to the cosest town; cars were not seen as long distance vehicles. Infact cross country diving atemps were ocasionaly taking place to prove the viability of the automobile but, most people used cars very localy. Only tains and horses were dedicated to croscountry adventures since airplains were not yet an option.

The increasing availability of paved and improved roads soon exposed their range limitation and amplified anxieties of batery reliant car owners. By the mid 20s most electric car makers were out of busines. However during the hundrend years of internal combustion engines that followed, the electric car enjoyed a brief – but sincere – revival, right at the pic of the most gasoline-minded moment in history. That was in 1959 with the Henney Kilowatt. Though the number of kilowatts produced was tiny, unlike todays equivalent busines models, the companies involved in building and selling the car were not start ups. National Union Electric, a

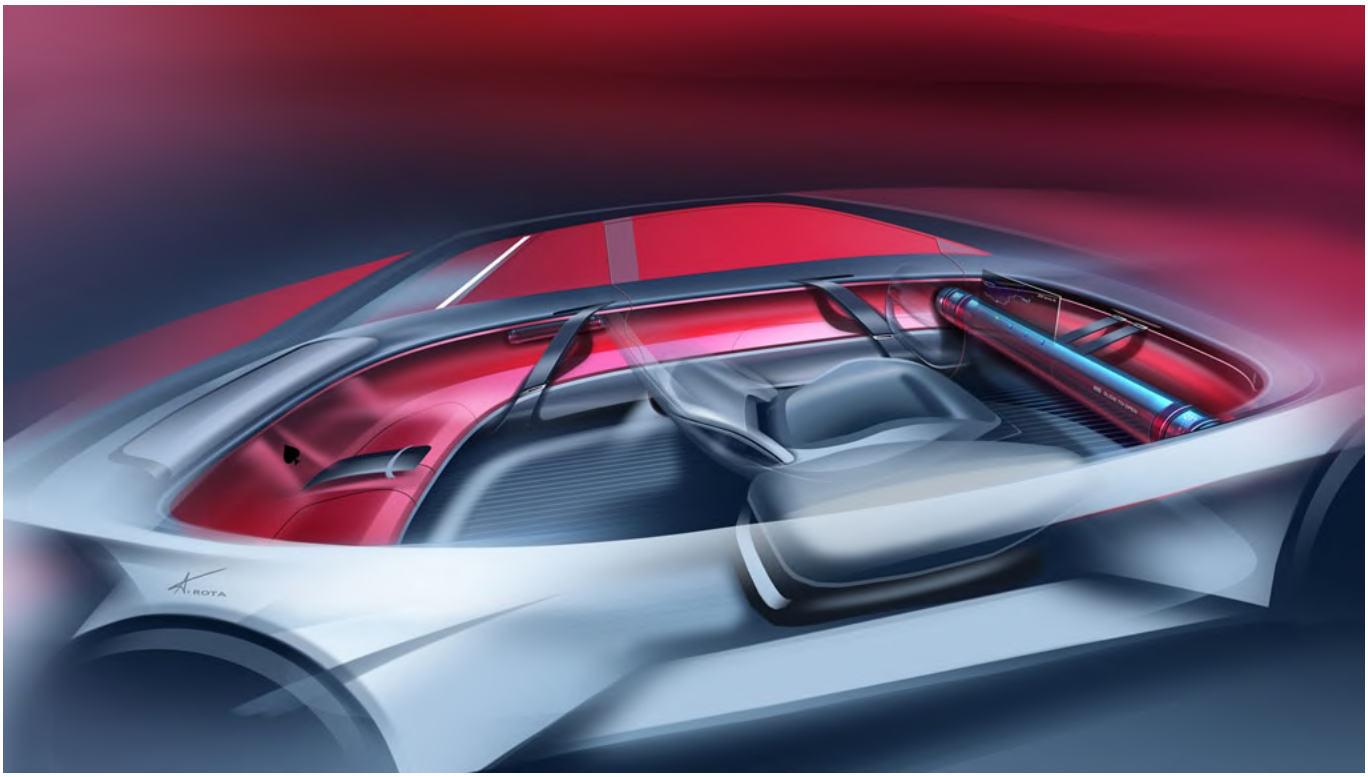
conglomerate that at the time included Emerson Radio, Henney Motor and Eureca-Williams Corporation. And it would be Henney Motor with Eureca that would do most of the work to bring the Kilowatt to market (Eureka was known for producing vacum cleaners).

Renault dauphine was chosen for a number of interesting reasons. The french carmaker, provided the vehicles without engines nor transmitions in order to be fitted with electric drivetrains. The car had an unbeatable advantage for extending batery range, it was extremely light. Dauphines, were also rear engined and that simplified the electric motor integration. This layout ofered plenty of under-hood battery space. Charging Kilowatt, came by way of a conventional electric cord which was plugged into an ordinary household outlet, expressing not just the way people move but also their lifestyles and looks for that precise moment in time.

From 2020 onwards and unlike automotive trendsetters, fashion industry leaders such as Balenciaga, Alexander McQueen, Carolina Herrera and Calvin Klein revived their collections with hand-embroidered fit-and-flares, copped merino sweaters and Swiss rebel-inspired back-combed quiffs. Meanwhile celebrity Miley Cyrus, has gone swiftly down the path of 50s rockabilly to promote younger-now video clip on 50s swinging vibes. Serena Williams had equally embraced the 50s style on her private event. Midcentury dresses, poodle skirts, cardigans, polka dots, halternecks, along with Allison Williams and Lady Gaga 50s hairstyles, is how to keep your looks up-to-the-minute. Seems that with its retro look and just 395x152 cm of urban footprint, Renault dauphine might have been indeed a somewhat timid vision of future mobility back then, however a much better fit for today’s upcoming urban trends and lifestyle.

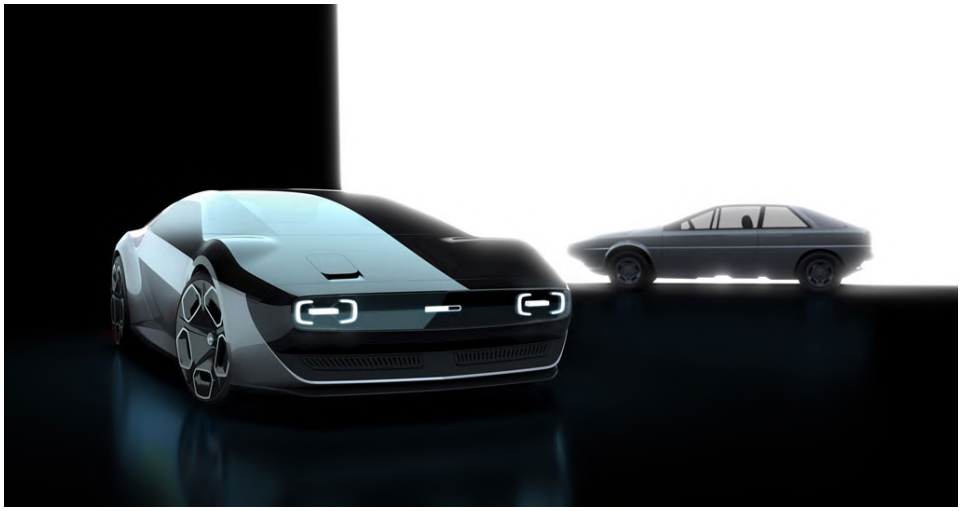
# Italdesign Asso di Picche In Movimento Digital Concept

THE DESIGN LOUNGE



ITALDESIGN IMAGES IN THIS ARTICLE

Italdesign is a longtime specialist in styling, engineering, production, and mobility. It is part of the VW/Aaudi Group since 2010, headquartered in Turin, Italy, with over 1,000 employees.



Fifty years ago, Giorgetto Giugiaro and the working group from the Italdesign Centro Stile presented the Asso di Picche, Italian for—Ace of Spades—at the IAA in Frankfurt. It was a styling study for a 2+2 sports coupé, built on an Audi 80 chassis, with styling features inspired by the Alfa Romeo Caimano and Maserati Boomerang designs, created and developed by Italdesign in the two years prior to its launch at the request of Karmann.

Asso di Picche In Movimento ('…in motion') is, in fact, the name chosen for the anniversary show car of the Asso di Picche. This interpretation translates the original model into the present, while preserving its essence and the simplicity of its design.

It's a 2+2 electric 3-door coupé without a center pillar, built on a next-generation platform. It's 4,662 mm long; 1,230 mm high, and 1,945 mm wide.

The body forms one seamless aerodynamic entity, embedded in a single outline that unifies the roof, front end and rear end, all the way down to the tail panel, wrapping around the cabin. It guarantees a bright interior and structural strength; Designed to protect passengers from the sun, a part of the roof has been treated like a polarized lens and filters out 100 per cent of UVA rays.

The two front passengers enjoy bucket seats designed for comfort but with a technical allure, like in the original model. Comfort takes a literal back seat to aerodynamics in the rear of the vehicle.


The two cylindrical components that dominated the original car's dashboard, the location of the controls usually situated on the instrument panel and secondary control panels, were the product of radical and advanced research into layout. They have returned as a distinguishing element of the new Asso di Picche's dashboard as well, and, with today's high-tech approach, they have become an interface that extends for the entire length of the dashboard: a light, suspended, ultra-thin screen, which can be rolled up or unrolled as needed. A few basic features are constantly visible; this choice, combined with the presence of a built-in scent synthesizer and audio functions, contributes to an immersive experience.

The leather belts on the storage pockets inside the door panels of the original model were elegant and highly distinctive. The same belts return as distinguishing elements of the door panels of the new car, becoming functional and structural components, in that they merge with the armrests and transform into handles to open and close the doors.

# News Mobility

## BMW's AI Customer Service

NEWS MOBILITY


BMW IMAGE

The entire automotive industry is undergoing a significant transformation driven by the promise of artificial intelligence. AI technology—or at least, technology marketed as AI—is increasingly being integrated into vehicles, with the stated intent to improve safety, efficiency and the overall driving experience. And now BMW has found another way to implement the new technology: Proactive Care, which combines data and artificial intelligence. This new service enables BMW vehicles to autonomously identify existing and predictable service requests, proactively anticipating customer needs and providing timely solutions. The first applications are now live and the automaker plans continuous enhancements for the future.

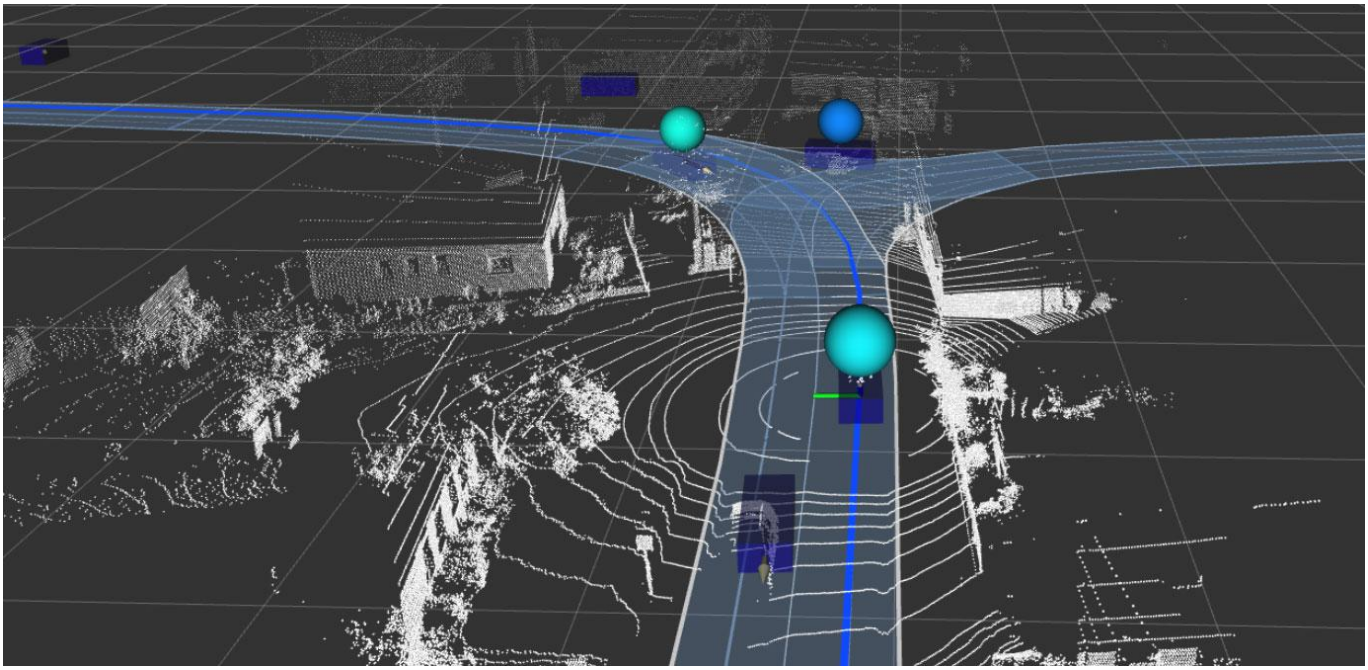
By analyzing data and capturing customer preferences, Proactive Care enables tailored solutions. According to BMW, the digital-first approach ensures that customers are notified via their preferred channels, be it the My BMW app, in-car notifications, email, the dealer of their choice, or a call from roadside assistance.

Proactive Care also enhances the long-term service experience, ranging from self-help tips to flexible support that ensures uninterrupted mobility. It even suggests the right dealer within the global network when a workshop visit is required. Online appointment scheduling and personalized service videos with online payment options are among the many features available.

Proactive Care is available worldwide from version 07/2019 for all models equipped with BMW OS 7 or higher. To participate, customers need an active BMW ConnectedDrive contract and must register their vehicle with their BMW ID and contact details in the My BMW app or in the My BMW portal.

# Research Project Lukas to Improve Safety in future Mixed Traffic

NEWS MOBILITY



BOSCH IMAGE

In the research project Local Environment Model for Cooperative Automated Driving in Complex Traffic Situations ('LUKAS'), Bosch, InMach, IT-Designers, Mercedes-Benz, Nokia and the Universities of Ulm and Duisburg-Essen researched future mixed traffic in the city and ways to increase traffic safety and efficiency. This is to be achieved primarily through the use of data from the local environment and communication between automated and non-automated road users and the infrastructure. The project took place at an intersection in the Lehr district of Ulm. The pilot facility has lampposts with video, lidar and radar sensors.

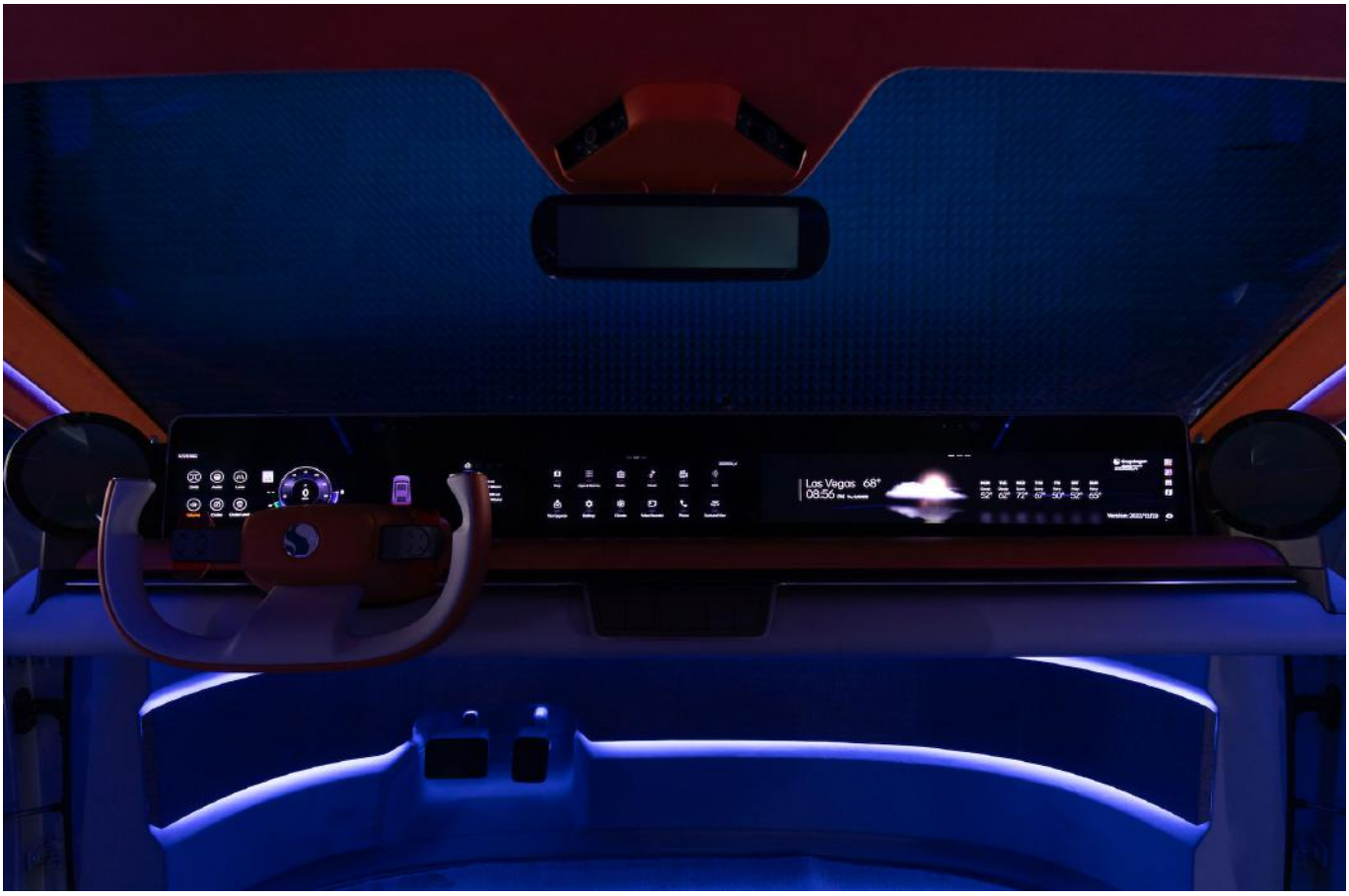
An edge server connected directly to the 5G network collects the pre-processed data from the road users and uses artificial intelligence methods, among other things, to calculate an optimized, cooperative maneuver and transmits instructions for action to the networked road users. These consist of pedestrians and cyclists networked with smartphone apps and partially automated passenger cars. According to the results, traffic efficiency and safety were improved in all tested use cases due to networking and cooperative scene planning.

The project was funded with €5.2m by the German Federal Ministry of Economics and Climate Protection as part of the specialist program for new vehicle and system technologies.

# General News

## Mahle Hella Sell BHTC to AUO

GENERAL NEWS




AUO FIDM PLUS IN SNAPDRAGON DIGITAL CHASSIS CONCEPT VEHICLE (AUO IMAGE)

Mahle and Hella are selling their respective 50-per-cent stakes in the Behr-Hella Thermocontrol (BHTC) joint venture to AUO Corporation. The total purchase price is based on an enterprise value of €600m, and the transaction is currently still subject to approval by authorities—closing is expected to take place by mid-2024.

Founded in 1996, Taiwan-based AUO's global team of 38,000 people develops and produces display, advanced display-oriented systems and industrial intelligence. They've recently launched AIoV, a connected-vehicle solution to help car manufacturers or fleet operators manage and maintain vehicles and monitor driver safety.

The agreed sale of shares is the result of discussions between Mahle and Hella regarding the future positioning and direction of BHTC—these talks were initiated on backdrop of a change-of-control clause in the joint venture agreement after technology company Faurecia acquired a majority stake in Hella.

BHTC, headquartered in Lippstadt, Germany, specializes in air conditioning control and HMI system solutions. Founded in 1999 as a joint venture between equal shareholders Mahle and Hella, BHTC currently employs around 2,900 people worldwide and generated sales of €619m in 2022.

# Toyota Boshoku Bolsters Seat Frame, and Long-Rail Activities

GENERAL NEWS


TOYOTA BOSHOKU IMAGE

Toyota Boshoku and Toyota Boshoku Seiko acquired the shares of Toyota Auto Body Seiko from Toyota Auto Body and increased its shareholding ratio from 33.6 to 66.4 per cent, making it a subsidiary of Toyota Boshoku and changing the company name to Toyota Boshoku Seiko Corporation as of 1 October 2023. An opening ceremony was held for Toyota Boshoku Seiko on 2 October to mark the company's new start.

Toyota Boshoku will make Toyota Boshoku Seiko as a major manufacture of rear seat frames and long slide rails, and will work together with Toyota Boshoku Seiko to further strengthen competitiveness of the automotive seat business, and become a solution company of vehicle interior space who is capable of creating new corporate value as an 'interior space creator'. Another goal is to further strengthen the competitivity of Toyota Boshoku group by using the manufacturing expertise Toyota Boshoku Seiko has accumulated through the production of seat frame mechanical parts.