

Editorial

IAA Mobility 2023: Future Mobility From Interior Perspective



IAA MOBILITY 2023 (DVN IMAGE)

The IAA Mobility show in Munich was more than just a car show. Since its relaunch in 2021, the IAA has been positioned as a comprehensive mobility show. Under the motto "Experience Connected Mobility", the trade show aimed to present what will move people today and in the future. This week we bring you a first in-depth impression of the show's automotive and interior innovations.

The incursion of artificial intelligence (AI) in cars is gaining momentum, thus spurring the need for partnerships. With the CLA Class concept, Mercedes-Benz presented their future design and interior outlook. Kurz presented interesting new design features and smart surfaces for the interior, Preh showed their 'placeable knobs', and Forvia and Continental exhibited new interior concept models.

In this newsletter we also report about parking a Mercedes via smartphone; a driverless minibus; Xiaomi's electric car plans, and Nio's view that voice control becomes mainstream in the car.

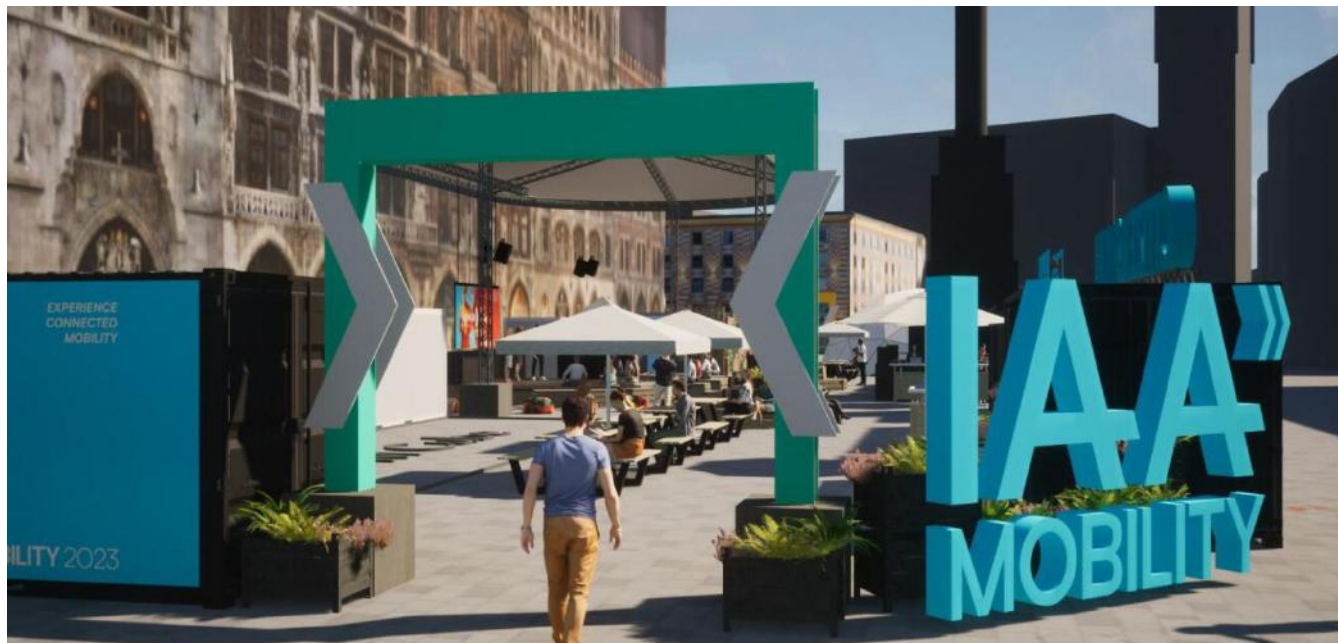
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Sincerely yours,

Carsten Befelein
Consultant, DVN-Interior

In Depth Interior Technology

IAA '23



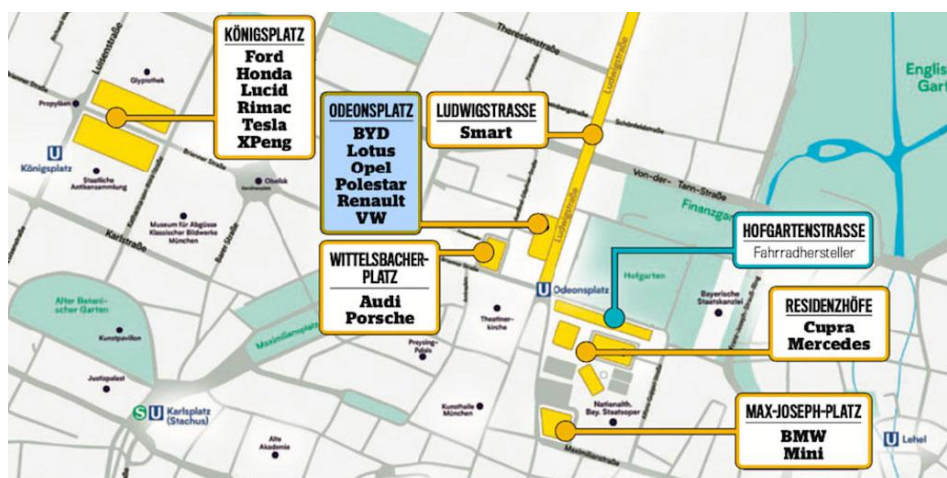
IAA MOBILITY IMAGE

This year, the IAA offered visitors less of a car show and more active experiences with a broader product range. It was a trade fair for the entire mobility world.

On the exhibition grounds, everything was pay-to-see. In the city there were games, fun, and especially car and bike shows—all free of charge.

In the exhibition halls on the eastern outskirts of the Bavarian capital, it was all about China's most important congress for electromobility, the summit of Bavaria's public transport, car design symposiums or meetings of the battery technology industry, for example. Highly interesting for business people or engineers from the automotive, tech, bicycle and micromobility industries, software or energy companies.

More than 500 speakers were announced with keynotes and contributions in six halls and on three stages. "The IAA Summit is the most important international B2B platform for mobility," said VDA Managing Director Jürgen Mindel.



LOCATIONS FOR CAR AND BIKE SHOWS IN MUNICH (IAA IMAGE)

Those who wanted to get close to new cars, bikes, and scooters did so in the open spaces in the old town. There, car fans could also get behind the wheel themselves: In the open space in Munich's city center, there were seven starting and finishing points. There, more than 150 vehicles were available for test drives—Audis,

BMW's, BYDs, Fords, Hondas, Lotuses, Lucids, Mercedes-Benzes, Porsches, Smarts, Volkswagens, and Xpengs.

VDA members Audi, BMW, Mercedes-Benz, Porsche, Opel, VW, Ford, BYD, Hongqi, and Leapmotor presented their latest vehicles, but previous exhibitors Hyundai, Kia, Genesis, and Polestar didn't return to Munich.

Newcomers such as Nio, Lucid, Lynk & Co, and Fisker were also still spurning the show. Those who wanted to see Ferraris, Lamborghinis, or McLaren's could also stay at home; those makers didn't participate. Neither did Peugeot, Fiat, Citroën, Jeep, Chrysler, General Motors, Toyota, Mazda, Honda, Suzuki, Jaguar, or Land Rover.

BMW's electric i7



NETCARSHOW IMAGES

The new home screen displays the navigation system's map view or other individually-configurable graphics at all times. On the same level, function icons in a vertical arrangement on the driver's side of the user interface can be selected with a finger-swipe. QuickSelect allows the associated functions to be accessed directly, without having to pass through a submenu. And once the relevant settings have been chosen, a quick tap on the home icon at the lower edge of the display is all it takes to return to the home screen.

European premiere of the MG Cyberster



MG MOTOR IMAGES

Chinese automaker MG Motor showed three all-electric models: The open-top two-seater MG Cyberster, which was making its European debut at the IAA, as well as the new MG4 Electric XPower and the MG Marvel R Electric Performance.

Smart #3 seen for the first time in Europe



SMART IMAGES

Smart celebrated the European premiere of their #3—a 4,400 mm long, 1,844 mm wide and 1,556 mm high E-SUV which made its debut at Auto Shanghai in April and is scheduled to be available for order in Germany at the end of this year.

Leapmotor's C10 E-SUV



LEAPMOTOR IMAGES

Chinese e-car manufacturer Leapmotor unveiled their first global model and first model built on the Leap 3.0 architecture, the C10. A central supercomputing platform will integrate the cockpit, pilot, power supply, and vehicle body. The company has strategic partnerships with partners including Nvidia, ZF Friedrichshafen, Qualcomm, Bosch, and NXP. Over the next two years, Leapmotor plans to launch five globally-focused products in Europe, Asia-Pacific, the Middle East, North and South America, and other regions.

European premiere of BYD's Seal U and Denza D9



BYD IMAGES

With the Dolphin compact electric car, Seal sporty e-sedan, and its Seal U SUV variant, BYD plans to expand their EV product range in Europe. BYD also presented their luxury sub-brand Denza, in which Mercedes-Benz holds a 10% stake, to the European public for the first time. The focus was on the D9, a large premium sedan with seven seats.

Audi Q6 e-Tron Interior



AUDI IMAGES

Audi presented the interior and cockpit of its new Q6 e-Tron. Elements in the foreground and background create a three-dimensional spatial architecture. Behind the steering wheel is a large, curved display. Next to it is another display for the front passenger. See more about this interior elsewhere in this DVN-I Newsletter.

Opel Experimental design study



OPEL IMAGES

With the new Opel Experimental design study, the automaker is sharpening its identity within the multi-brand Stellantis Group. The battery-electric study puts the focus on the new lightning bolt logo, emphasizes the compass motif more strongly in the lines, and bristles with innovations.

Light elements are also used in the interior. The fabric covering the doors changes colors to warn of traffic in the blind spot. The windshield serves as a large projection surface for navigation instructions and for warnings. The most important controls can be called up via a freely-configurable display in the front armrest. Voice control and machine learning support the driver.

Mini's three-door and Countryman



MINI AND DVN IMAGES

The three-door Mini and the Countryman are visually divided into three parts: the body, the all-round window area, and the contrasting roof. Inside, the round display remains a typical Mini feature, this time with OLED technology.

The New Mercedes-Benz Vision One-Eleven



DVN IMAGES

Inspired by the legendary C111, the extraordinary Vision One-Eleven displays an extremely dynamic design language. The modern interior contrasts with the flat pixel display that extends across the entire width of the dashboard and picks up on the shape of the two light bands at the front and rear.

This In-Depth presentation of first impressions covers automakers; keep reading for more information from IAA, and watch for our coverage of supplier expos in a forthcoming DVN-I Newsletter.

Interior News

Audi Q6 E-Tron's Futuristic Cockpit

INTERIOR NEWS



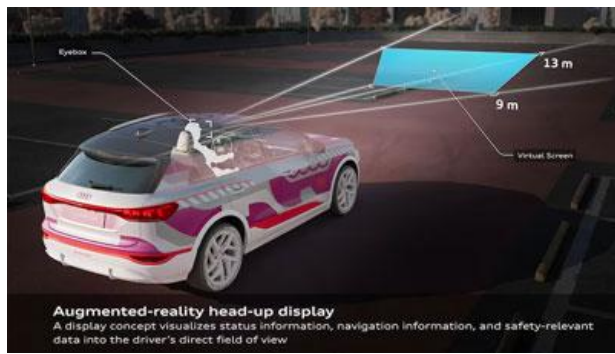
AUDI IMAGES

Audi says the interior of their Q6 e-tron, presented at IAA, is 'testament to user-centered design principles'.

It's centered round a large screen, integrating OLED curved displays, including an 11.9" Audi Virtual Cockpit and an expansive 14.5" MMI touch display, that handles infotainment and climate controls. The 11.9" curved display is angled slightly toward the driver, while the infotainment segment of the screen is still easily reachable by and legible to the passenger. The MMI display features an active privacy mode with shutter technology that allows the passenger to watch movies without it being distracting to the driver.

The Q6 e-tron introduces the AIR operating concept. Powered by the Android operating system and driven by the Audi Assistant voice control, it proactively manages over 800 functions, Audi says. The introduction of intelligent voice control, initiated by simply saying "Hey Audi," allows for seamless, hands-free operation of a wide range of functions. Developed with Cariad, the assistant continuously 'learns' from the user's behavior to offer the best possible support. That includes proactive suggestions, 'smart routines', and 'intelligent lists'.

Dynamic light strips equipped with 84 LED elements play a role in conveying information to occupants. These lighting elements dynamically communicate information such as hazard warnings, charging status, and locking notifications. It is called 'Interaction Light' (IAL). For example, the IAL can serve as a progress bar when the Q6 E-Tron is charging, or it can visualize dynamic turn signals. The IAL can also display welcome animations, indicate when the vehicle is locked, and integrates into the overall interior ambient lighting.



The car also features an augmented-reality head-up display (ARHUD). This system offers an expansive 88" field of view, ensuring that critical information, such as navigation data, and safety-related information, is presented directly within the driver's line of sight. The technology can give the impression that images are projected up to 656 feet in front of the car. Audi says the field of view for the ARHUD corresponds to a diagonal of 88" from the driver's perspective.

Neue Klasse BEV is "BMW Megaproject"

INTERIOR NEWS



DVN IMAGES

BMW had a significant presence at IAA, with a strong emphasis on their EV lineup. At the press conference, CEO Oliver Zipse described the Neue Klasse BEV platform as a 'megaproject' within BMW. "It is about nothing less than the future of the BMW brand, the BMW Group and our portfolio", he said.



The highlight of this presentation: a futuristic near-production concept car that offers a glimpse of the next generation of the BMW i3.

With the BMW Panoramic Vision, a new multifunction steering wheel, the new central display and a new BMW 3D HUD as central display and operating elements, the BMW user experience is being reinterpreted in all Neue Klasse models, BMW said.

The design retains iconic BMW design elements like the kidney grille (grilleboard, actually; there's no radiator and thus no radiator grille). Inside, the Neue Klasse offers an advanced digital user experience, thanks to next-generation BMW iDrive.

Performance also gets a significant boost with the sixth-generation BMW eDrive technology, offering faster charging, extended range, and improved efficiency.

The interior is quite futuristic. It starts with a new trapezoidal display powered by what could be the future iDrive 10. Complementing the infotainment system is the new BMW Panoramic Vision Display. Essentially, this is a full-width display that projects information onto the entire windshield, giving drivers and passengers all the information they need without having to take their eyes off the road.

The Panoramic Vision Display is made possible by a new projection technology that uses a dark-coated area at the lower edge of the windshield. This creates a sharp image that is always visible across the entire width of the windshield, even in bright sunlight. You can also transfer information from the central display to the Panoramic display by simply dragging the content.

Fisker's European Debut

INTERIOR NEWS



FISKER IMAGES

Fisker made their European debut at IAA of their future all-electric vehicle line-up: the Pear 'city EV', Rōnin 'grand-touring four-door convertible', and Alaska all-electric pickup truck. A media preview took place at Munich Motorworld's Dampfdom.

Fisker is designing and developing individual mobility in alignment with nature. Driven by a vision of a clean future for all, the company is on a mission to create sustainable and emotional electric vehicles.

While the Ocean is produced in Austria by Magna Steyr, the Pear will be assembled in Ohio (USA) by Taiwanese electronics group Foxconn from 2024, and is to be marketed across the Atlantic at a lower base price of USD \$29,900 (€28,151). The first rolling prototype of the Pear was built in December 2022. The manufacturer says a range of several future models will be presented through rolling prototypes during 2023.



The Pear body has a particular shape, with front pillars will be clearly visible from the inside. Therefore, its windscreen pillars have a very marked angle at mid-height to follow a window with an enveloping design. As for the last segment of the roof, it is black like the upper part of the roof, while the pillars and the roof arches are in body color. That gives the illusion of a compact cabin, when it is actually for spacious and modular interior with seating options for five or six passengers. It has slim LED lighting, and optional 17.1" rotating screen.

VW ID.4 HP Infotainment Upgrade

INTERIOR NEWS



VW IMAGES

The 2024 VW ID.4 is made in Chattanooga, Tennessee, USA and available in three trim levels. For the '24 model year, ID.4s are getting a larger display. The previous models have a 12" display, but new models will boast a 12.9" display with backlit sliders, as well as what VW says is a more intuitive new climate control interface and a revised infotainment menu.



The 82-kWh models will also have a new shifter position and a revised steering wheel layout. They'll also have ventilated front-row seats, and S Plus models will have a premium Harman/Kardon audio system with nine speakers plus a subwoofer and a 16-channel amplifier (the previous model had seven speakers plus a subwoofer).

The backlit sliders will improve climate control and volume ergonomics.

Seres' Three New NEV SUVs

INTERIOR NEWS



SERES 5 (SERES IMAGE)

Seres, a subsidiary of the Chinese Sokon group, is a Chinese brand of 100% electric vehicles. It made its debut at IAA with several new models, including Seres 3 C-SUV and Seres 5a D-SUV with range extender.



DVN IIMAGES

Since January 2023, Seres has entered more than 20 countries worldwide, covering Europe, the Middle East, the Americas, and Africa. It also completed a quality road test across Europe, covering 21 countries in 23 days, and accumulating over 10,000 km per vehicle. The overall charging compatibility rate exceeded 95 per cent.



Inside the Seres 7 shown here, there are three rows of seats with two captain's chairs in the second row and a roomy and accessible third row. For the front occupants, the large 15.6" screen dominates, and it embeds the Huawei Harmony OS system. Two phone slots on the center console are equipped with wireless chargers.

Continental Partner with Google for AI Cooperation

INTERIOR NEWS



CONTINENTAL IMAGE

Continental has announced a partnership with Google for the development of artificial intelligence (AI) in cars. According to Philipp von Hirschheydt, CEO of Continental Automotive, the collaboration with Google will integrate AI directly into the vehicle's computer. This is expected to enable drivers to retrieve information such as tire pressure or points of interest via voice control instead of having to search for them in the menu. In addition, the system can also answer questions about the vehicle itself. This should not only increase convenience, but also improve safety. Unlike conventional voice control, the system is capable of learning and also enables followup questions.

Similar projects are already underway at other companies. Mercedes-Benz announced plans to improve their MBUX voice assistant with the all-the-rage AI chatbot ChatGPT. Initial tests are already underway.

VW's Cariad software division recently acquired Saarland, Germany-based AI specialist Paragon Semvox. The technology will now help in the development of an AI-based voice control system that can also respond to facial expressions and eye movements.

Continental says they are the first supplier to collaborate with Google in this area. The U.S. search engine giant has long been shunned by manufacturers such as Volkswagen, as the Americans are themselves working on the development of autonomous driving cars with their subsidiary Waymo.

MB CLA Concept: Future Design and Interior Outlook

INTERIOR NEWS



MERCEDES-BENZ IMAGES

At the IAA Mercedes-Benz presented the MMA (Mercedes-Benz Modular Architecture) platform, thus opening the next chapter in its electrification strategy. The new underpinnings will be the foundation of the brand's future entry-level electric models, which will be launched in 2024 with long range and powerful computers.



The interior offers plenty of white and silver leather, chrome, ample ambient lighting, and large displays. A special detail can be found in the center of the front footwell in the form of a luminous box with the inscription "MB.OS". This component symbolizes Mercedes' new digital foundation. The box contains a supercomputer with a water-cooled chip which, in conjunction with the MB.OS (Mercedes-Benz Operating System) is designed to meet the increasingly demanding requirements of the digital automotive age.

The highly complex, digital and networked infotainment worlds of MBUX, superscreens, immersive sound experiences, new AI functions, and ever newer and better infotainment functions and assistance systems downloadable via OTA are to make MB.OS manageable.

Guests should feel like they have a second home in vehicles of the MMA generation and no longer miss any digital comfort in the car. And they will be able to enjoy many self-driving functions in the future. From the start, MMA vehicles are to be L³-capable.

In addition, the MMA platform marks an important step for Mercedes towards achieving their 'Ambition 2039', with which the manufacturer has committed themselves to achieving CO₂-neutrality in their entire value chain by 2039. This relates to the supply chains, production and logistics, the well-to-wheel balance and the end-of-lifecycle of the vehicles. Among other things, cell and cathode production will be CO₂-neutral, which is why future batteries will already produce 40 per cent less climate gases during their manufacture. Climate neutrality and circular economy targets are relatively easy to achieve in some areas, such as textiles used in vehicles.

The Design Lounge

New Design features from Kurz

THE DESIGN LOUNGE



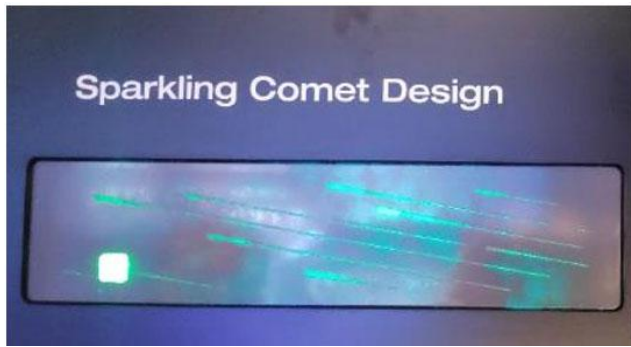
DVN IMAGE

Supplier Leonhard Kurz showed a steering wheel at IAA with integrated genuine crystals from Swarovski to enable touch control. The backlit full-cut crystals can be color-matched to the interior of the vehicle. The total of six crystals from Swarovski are located to the left and right of the steering wheel's center-mounted display. PolyIC's thin and transparent sensor technology, including backlighting, makes the functions visible only when the user approaches or touches them. We can eagerly look forward to learning what magic tricks Swarovski might have up their sleeves to combat glare and distraction from sun reflected in the crystals!



DVN IMAGE

Kurz also presented new automotive surface designs with naturals, sustainability, rim design, and their 'Spacewood Experiment, and interesting dynamic light effects on the basis of foil technologies.



DVN IMAGES

Preh's Placeable Knob

THE DESIGN LOUNGE



PREH IMAGE

Preh presented the 'placeable knob' at the IAA. The removable rotary knob can be freely placed on the touchscreen, center console or door control module. The patented 360° rotary push button can be personalized and, according to the manufacturer, opens up new design possibilities for multimodal operation without distracting the driver too much.

Continental's Space D Design Concept

THE DESIGN LOUNGE



CONTINENTAL IMAGE

Space D is intended to represent a kind of mobile oasis, Continental says. The frame is formed by wooden slats on the outside. In addition to design, sustainability is to be the focus of the interior study. A vegan surface material called Benova Eco Protect dispenses with plasticizers and solvents. Acella Sustainable Product Design is used on the chair in the front work area. On the control panel in the lounge area, the translucent material Xpreshn Hylite Concept controls the light and the heating of surfaces.

News Mobility

Park Your Benz With Just a Smartphone

NEWS MOBILITY



Mercedes has introduced an innovation for certain models that lets drivers park their cars via smartphone. No more searching and then maneuvering into a tight parking space—you'll get out where you like, and then picked up at your front door: all this is now possible with Mercedes' new 'Valet Parking' function. It is already available in the new EQE and S-Class, and other models are to be given the option of retrofitting.

Via the Mercedes me app, owners can reserve a parking space in advance and park the car in a special drop-off zone in the parkade. Then the driver and passengers can get out, and with an app command the car drives away and parks itself. On the way back, no need to trip through the parkade: just summon the vehicle to the pick-up spot via app.

As soon as the update is available for their vehicle, it will be displayed in the Mercedes me app. Under "Service management" they can activate the "Intelligent Park Pilot" service. The new E-Class and other Mercedes-Benz models are to be retrofitted. Excluded are the EQE, EQS and S-Class models from Mercedes Maybach and Mercedes-AMG.

Schaeffler, VDL Build Driverless Minibus

NEWS MOBILITY



VDL GROUP IMAGE

Together with Dutch car and bus manufacturer VDL, supplier Schaeffler wants to develop and build a driverless minibus for public transport. The electric minibus with up to nine seats is to be launched on the market in 2025, the two companies have announced.

Talks are already underway with local transport and operator companies for initial pilot projects in public road transport, they said. Schaeffler and VDL presented a concept vehicle at the IAA.

Outside peak hours, self-driving minibuses could replace large buses with drivers. Transport experts expect growing demand for them in many major cities in Europe, North America, and Asia. Schaeffler CEO Klaus Rosenfeld said they could make mobility more accessible to people in cities as well as rural areas.

The autonomous driving system for the Schaeffler VDL minibus with cameras, lidars, and radar sensors is to be supplied by Israeli Intel subsidiary Mobileye.

General News

Xiaomi's Electric Car Plans

GENERAL NEWS



XIAMO IMAGE

China's third-largest smartphone maker Xiaomi has moved a big step along their plan to build electric cars. The National Development and Reform Commission (NDRC), which regulates investment and production capacity in China's auto industry, granted approval in early August, though the start of series production, scheduled for next year, still needs permission from the Ministry of Industry and Information, which oversees technical and safety requirements.

Xiaomi wants to invest USD \$10bn in the automotive business within a decade. Production is expected to start in December, and Xiaomi is said to be targeting a volume of 100,000 vehicles in the first year. Workers have been hired under high pressure since last week. The state-run Beijing Daily newspaper reported in July that construction of a factory with an annual capacity of 200,000 e-cars in Beijing had already been completed. The city of Beijing hailed the new e-car plant as an important industrial modernization project.

Xiaomi is only the fourth company since 2017 to receive approval from the NDRC. The authority had become more cautious because of rapidly growing capacities. Tesla, for example, has yet to receive approval for a requested expansion of its Shanghai plant. According to data from the Chinese CPCA Automobile Association, car factories in China were running at just over half capacity last year, compared with two-thirds five years earlier, out of a total capacity of 43 million vehicles.

Voice Control Becomes Mainstream in the Car: Nio's Ted Li

GENERAL NEWS



NIO IMAGE

Chinese e-car manufacturer Nio is primarily promoting connectivity and digital services in their cars. Here, a conversation with Ted Li—assistant vice president of product management—is summarized.

The popularity of electric vehicles has led to users staying in their cars longer, and media content consumption has increased. Electric vehicles are quieter; they have better networks and panoramic digital cockpits—the consumption value of media content is more pronounced and the experience is more immersive. The future direction will be a personalized immersive space.

Voice control will become the mainstream interaction method in cars. It is more efficient than touchscreen operation and can provide fast command control, content search, navigation, and media entertainment. This improves interaction efficiency. Voice control is not just a function, it is also emotional communication. In Nio, the Nomi voice assistant is a living and moving anthropomorphic hardware in the car. It can fulfill requirements: for example, single-task, multi-task, multi-round dialog, offline dialog, or scenario response. This is possible by means of cloud and simultaneous local data processing.

Nio researched the software and hardware of Nomi itself and has filed nearly 100 patents and applications for it in China, the United States, Europe and other countries. That ensures comprehensive patent protection for Nomi's hardware structure, software algorithms and designs. Nomi's hardware is designed as a whole with other intelligent cockpit domains. The functional logic is based on the chip of the central digital cockpit. The overall design of the scheme includes four microphones, dual-screen linking, proximity sensing, sound zone detection and other functions for interaction. Materialized voice assistants like Nomi make communication more human and improve emotional communication through emoji feedback.

This raises the voice control to quite a high level. It can also be combined with different user groups, for example, to have conversations with children, provide content and media exclusively for them, and give a sense of camaraderie. In the future, corresponding gesture control could be combined with voice control and artificial intelligence, creating a new development potential.