Thu, 9 January 2025
Weekly Newsletter

DVN Interior

NEWSLETTER #243

Editorial

Happy New Year 2025, And Innovations From CES

LAS VEGAS CONVENTION CENTER, WEST HALL IN FINAL PREPARATION (DVN IMAGE)

The whole DVN team wishes you a happy new year 2025, with a lot of good things for you, your company, interior, and automotive…passengers safe, healthy and entertained.

Safe, healthy and entertained is exactly what CES 2025 I'm attending this week is reflecting as the future of what can be done inside the cabin with drivers and passengers!

This week's newsletter is completely focused on what is happening in Las Vegas, with first impressions written after a day and a half of wandering around the booths of this biggest-in-the-world technology show.

The major themes are numerous, and sometimes contradictory; for instance, wider displays…and bringing back real buttons. Other takeaways include software-defined vehicles, improved driver experience, 'AI', personalized and contextualized interactions within the vehicle, driver monitoring systems going beyond attentional monitoring by constantly interpreting the driver's emotions, voice recognition and other more intuitive direct interactions, and cockpit and ADAS integration platforms. Watch for more reporting in next week's newsletter, and in the final report to be published at the end of the month.

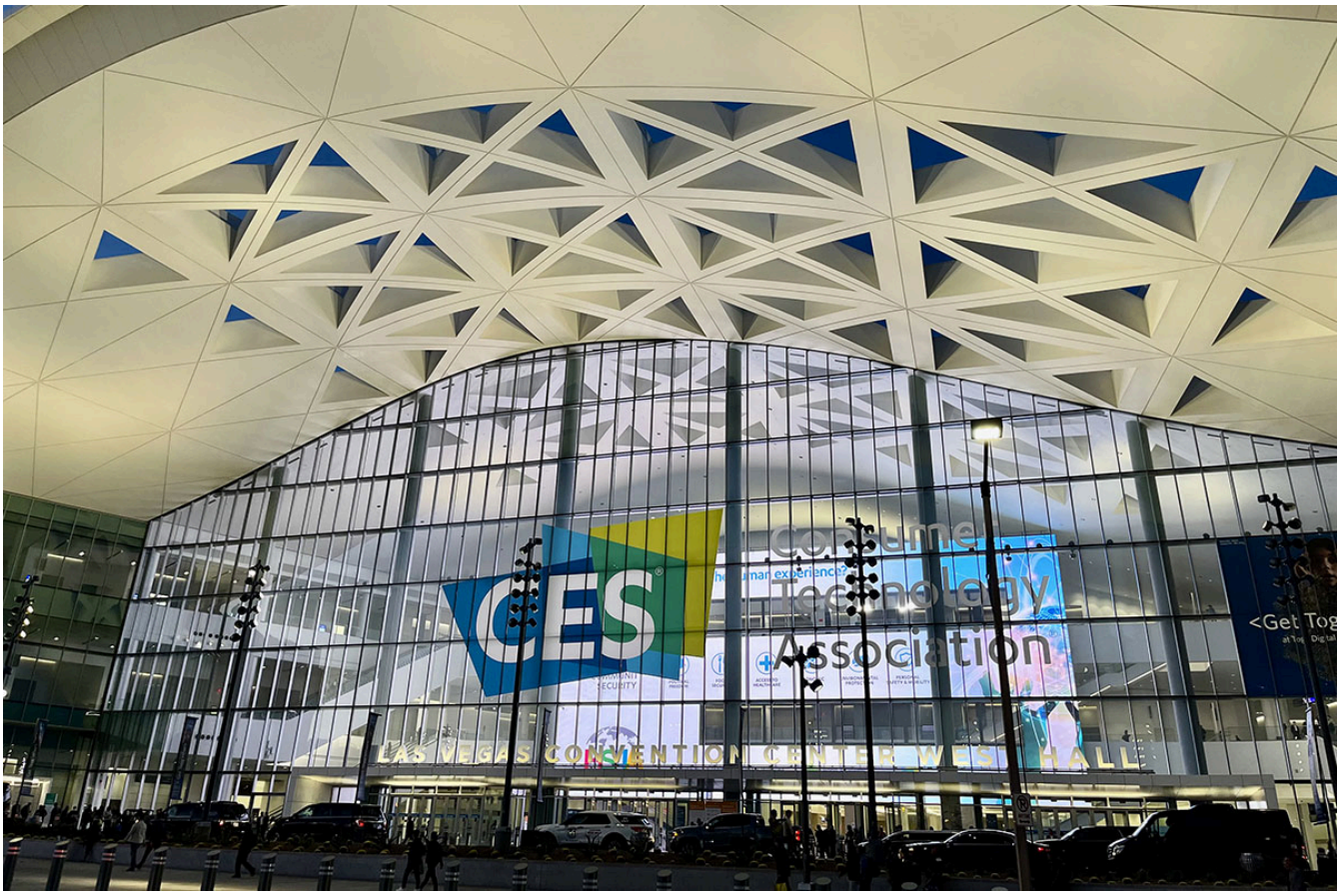
As we are starting this year, I remind you that DVN Interior has planned two major events in the first semester, the DVN Interior Workshop in Köln, Germany on 8-9 April and, for those willing to develop business in China, the interior exhibition and conferences as part of the DVN/EAC Enmore partnership in Hangzhou, China, on 4-6 June. More to come on this important event in the next editions.

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

CES 2025: First Impressions



CES IMAGE

Each January, the world's industries gather in Las Vegas for the biggest tech event on the planet, CES, to unveil their innovations that will shape our future.

For all industries, including automotive, software trends continue to dominate the industry's collective brainpower, but as automakers and suppliers take a moment to breathe and rethink the value of self-driving technology, pure-touchscreen interfaces, and maybe even 'AI', much of the emerging focus is on what can be done inside the cabin to keep drivers and their passengers safe, healthy, and entertained.

These trends reveal a shift toward more personalized and seamless interactions between occupants and their vehicles, with features like real-time hazard alerts, adaptive comfort settings, getting back control buttons, 'AI'-driven navigation systems, and more.

From an automaker perspective, supported by suppliers, high-interest topics include wider head-up displays, cooperation between Honda and Sony, Suzuki's new platform, and more power to everything.

Years ago, car manufacturers discovered CES in Las Vegas and presented their latest achievements. Now that infotainment is becoming increasingly important and development cycles are getting shorter, CES is a well-matched stage for the auto industry. But participation is still fluctuating. Even though several major automakers aren't present, including Hyundai and Mercedes who had previously planned to be there, there are still a great many exhibits to see. Magna, ZF, and Forvia are among the major tier-1s absent from CES this year.

Software-Defined Vehicles

SDV is a big thing here, as the electronic and software architecture allow better efficiency, ending up with an improved driver experience. It includes precise, scalable maps for more automated vehicles, platforms and

tools for the efficient development and maintenance of SDVs as well as performant, energy-saving storage technologies. These technologies promise to further digitalize the automotive industry, increase efficiency, and further improve driving experience.

Intel is presenting their vision for SDVs in several keynotes and talks. Highlights include the combination of high-performance computing, intelligent energy management and zonal controllers as well as 'AI'-supported solutions for end users.

Keysight presents solutions for the emulation and validation of SDVs, including virtual prototypes and vehicle-to-grid compatibility testing. The tools improve production processes, increase efficiency and reduce development times. One focus is on cybersecurity with automated test solutions.

Vector shows a comprehensive SDV package, consisting of a modular software platform, an open software factory and accompanying development services, and technologies such as OTA updates, parallel SIL and HIL testing, and SDV cloud integration.

Bringing Back Buttons

Actual, real, physical controls for safer and more intuitive HMI is another big thing! For example, Hyundai recently told Korea's JoongAng Daily they are reintroducing physical buttons in their vehicles, responding to growing demand for intuitive and accessible controls. It might be a matter of enthusiasm (for what was presented as an imminent wholesale shift to autonomous driving) having spurred automakers to jump the gun a bit with their interface designs. Now that it's apparent real self-driving is still a ways off, more human-centric interfaces with real controls are coming back. When driving will become more automated for real, drivers may one day welcome back pure-touchscreen interfaces.

For now, drivers are fed up with touch screens, and raise questions about their usability, especially while driving. Hyundai's decision follows feedback that tactile buttons provide a safer and more ergonomic way to adjust essential features like climate controls without diverting attention from the road.

This shift aligns with upcoming Euro NCAP standards, which will require physical controls for certain functions by 2026 for vehicles to achieve top safety ratings. Hyundai's refreshed Ioniq 5 already incorporates these changes, signaling a broader trend within the industry to prioritize safety and driver convenience.

Here are a few examples supporting this buttons-are-back trend.

Driver Monitoring Beyond Attention

Driver monitoring is now mandatory in all vehicles, and performance still needs to be normalized. However, new technologies are showing up, including using DMS to interpret driver emotions. Here's a first look:

Omnivision/Philips

Omnivision and Philips present an in-cabin monitoring system designed to track vital signs such as heart rate and breathing patterns, with the goal of enhancing driver and passenger comfort. By integrating this data with vehicle settings, the system promises to adjust lighting, climate, and even suggest breaks or route changes based on physiological responses.

Omnivision's senior automotive marketing manager Ritesh Agarwal says automakers "are continuously looking to add value and differentiate their brands by adding novel features that increase the comfort level in cars. This in-cabin solution will bring added value to automotive consumers and shorten time to market for tier-1 [suppliers]".

Continental's Invisible Biometrics Sensing Display

CONTINENTAL IMAGE

Continental is returning to CES with their Invisible Biometrics Sensing Display, covered in greater detail later in this newsletter.

LG's 'AI' In-Cabin Sensing

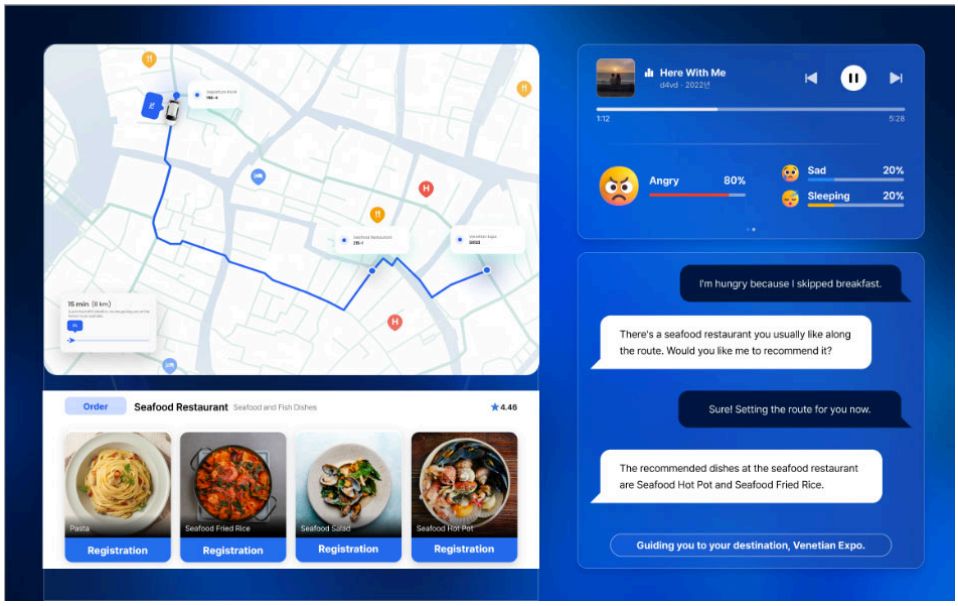
LG IMAGE

LG showcases their "AI In-Vehicle Experience". This sensing solution is designed to bring greater safety and convenience to the driving experience.

The system starts by detecting and analyzing both the driver and vehicle interior in real time through two key systems: DMS, and the Driver and Interior Monitoring System (DIMS). Both systems are demonstrated through immersive, interactive simulations.

The in-cabin sensing solution adapts to individual preferences and needs, delivering tailored services such as personalized driving routes, real-time updates on road conditions, and information on nearby infrastructure and points of interest. The DMS can identify driver's physical health and emotional state through real-time heartrate monitoring and facial expression recognition. This system helps improve road safety by alerting users to their level of alertness and overall wellbeing, as well as giving them an effortless way to track their health over time.

InDJ Emotion Aware 'AI'



INDJ IMAGE

South Korea's InDJ is a company of experts in emotion recognition 'AI', to make human-machine interactions seem more intelligent and empathetic. With award-winning solutions presented at CES, the company expands its technological reach into connected automotive applications.

InDJ's Connected Car Infotainment Assistant uses internal and external sensors to continuously analyze the emotional states of drivers and passengers in real time. By gauging mood and sentiment, the system can provide tailored music recommendations, optimize navigation routes, adjust in-cabin temperature settings,

and act as a virtual personal assistant. The result is a safer and more comfortable driving experience—one that feels deeply personalized and responsive to user needs.

Cipia

MulticoreWare, specialists in software and engineering solutions, and Cipia, specialists in 'AI'-driven in-cabin monitoring, are collaborating to unveil a groundbreaking demonstration of sensor fusion technology. This system combines 60-GHz radar and infrared camera technologies to precisely track driver and occupant vital signs, including child presence detection, even under complex conditions.

Technology, optimized for edge computing platforms, enhances safety and decision-making by enabling real-time monitoring and proactive interventions. MulticoreWare's expertise in radar sensor processing and Cipia's advanced computer vision 'AI' complement each other; together, they aim to deliver integrated safety features for software-defined vehicles.

Voice Recognition (far-field voice capture)

Voice control is an enduring quest, looking for hands-free functionality, good for both safety and convenience. Far-field voice capture allows drivers to interact with in-car systems for navigation, phone calls, or media control without taking their hands off the wheel or eyes off the road.

In this context, far-field technology's ability to distinguish between the driver's voice and other background sounds, such as road noise, music, or conversations among passengers, becomes essential. This enhances the reliability and responsiveness of voice assistants within vehicles.
Ark Electronics USA, a global electronics manufacturer, created Ark X Laboratories to deliver voice experience to the market. Their next generation of advanced, high performance far-field voice capture solutions, featuring Cirrus Logic, Sensory and NXP technologies, are Amazon pre-qualified and production ready. This provides voice-enabled IoT products and smart devices.

Personalized Interactions

Garmin launches Unified Cabin 2025

GARMIN IMAGE

The Garmin Unified Cabin 2025—a CES Innovation Award winner this year—comes with infotainment and safety features., every passenger having a unique experience. The product comes with infotainment features, such as personalized voice assistants for every seat in the car, zoned audio and six displays across four zones.

It also includes safety features, such as child presence detection and computer vision and augmented reality for better views of the front and rear blind spots.

It is powered by Qualcomm Technologies' Snapdragon Cockpit Elite platform. Key features include backseat child presence detection, ultra-wideband capabilities, and driver monitoring to ensure road focus even amidst rich entertainment options. Passengers can enjoy personalized gaming or streaming experiences at their seats, using Bluetooth headphones and smartphones that connect to each individual screen.

Wider head-up display

BMW Panoramic Vision, with operating concept

BMW IMAGE

BMW, the only German premium automaker on site, has been preparing the launch of their "New Class" cars for years—in the development departments as well as in the media. The time will finally come in 2025. At CES, the Panoramic Display and the associated new operating system are at the center of BMW's presentation. Find more detailed coverage later in this newsletter.

Hyundai Mobis-Zeiss Holographic Display

HYUNDAI IMAGE

Hyundai Mobis introduced three human-tech technologies: the Holographic Windshield Display, the Human-Centric Interior Lighting System, and the Brainwave-Based Driver Care System (M.BRAIN). These

innovations are designed to enhance the interaction between humans and machines, prioritizing user safety, convenience, and experience.

Ceres Holographics, Eastman and Appotronics
A lot of new announcements on Ceres Holographics side, more to come with interview and report in net week's newsletter.

Cockpit and ADAS integration platform

Bosch Mobility presents highlights from the areas of connected mobility, automated mobility, and powertrain systems and electrified mobility.

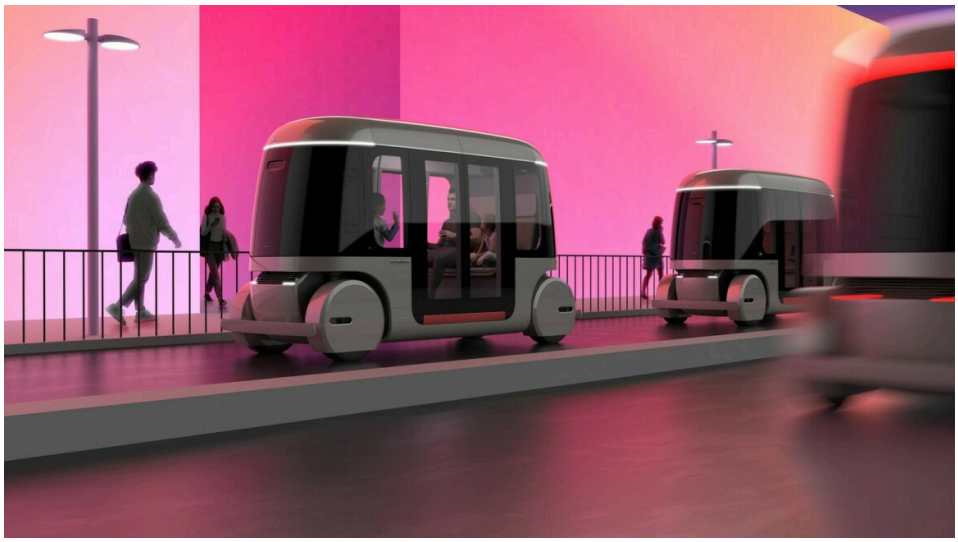
The cockpit & ADAS integration platform is a scalable, modular platform. It combines the system functions for assisted and automated driving and infotainment in one high-performance computer. Thanks to this capability, this Bosch vehicle computer can simultaneously detect lanes, park automatically, and process personalized navigation and voice assistance functions.

Honda and Sony cooperate

Honda unveiled their 0 (Zero Emission) Series BEV prototypes. The automaker also provided an overview of the SoC that will support the 0 Series cars, and also their forthcoming SDVs, as well as their planned new-energy customer service, which will be introduced when the 0 Series models go on sale.

It is also exciting to see what happens to the collaboration between Honda and Sony, which appears together as Sony Honda Mobility Inc.. The body of the concept car shown in Las Vegas will only play a minor role. Sony is mainly concerned with connectivity and innovative solutions for operating the infotainment system. Entertainment and games are of course a must for the Playstation fathers. Presumably you can import your game saves into the car and play games such as Gran Turismo 7 or FIFA in traffic jams.

Suzuki's New Platform



SUZUKI GLYDWAYS SHOULD BE ABLE TO DRIVE FULLY AUTONOMOUSLY (SUZUKI IMAGE)

Suzuki is at CES for the first time, and they're showing their work on autonomous driving. Together with technology company Applied EV, Suzuki has developed an autonomous electric platform designed for small cars. The robotic vehicles are designed to drive in defined areas and thus counteract the shortage of drivers in the industry. Glydways, a company that has developed an urban transportation system together with Suzuki in which small, autonomous vehicles use their own lanes, is taking the same approach. Even smaller is a versatile architecture for electric micromobility, based on technology developed in-house for electric wheelchairs. The result is robots that operate with artificial intelligence. Examples include the LM-A automatic Lomby delivery robot and the V3 snow clearing drone, which is being implemented by Everblue Technologies.

Zeekr with 3 Models

Zeekr, one of the many brands of Chinese car company Geely, brought the 001 FR, 009 and Mix models to CES. Zeekr sold a record 222,123 vehicles in 2024. Geely recently shuffled around its brands, meaning Lynk & Co now sits under the Zeekr umbrella.

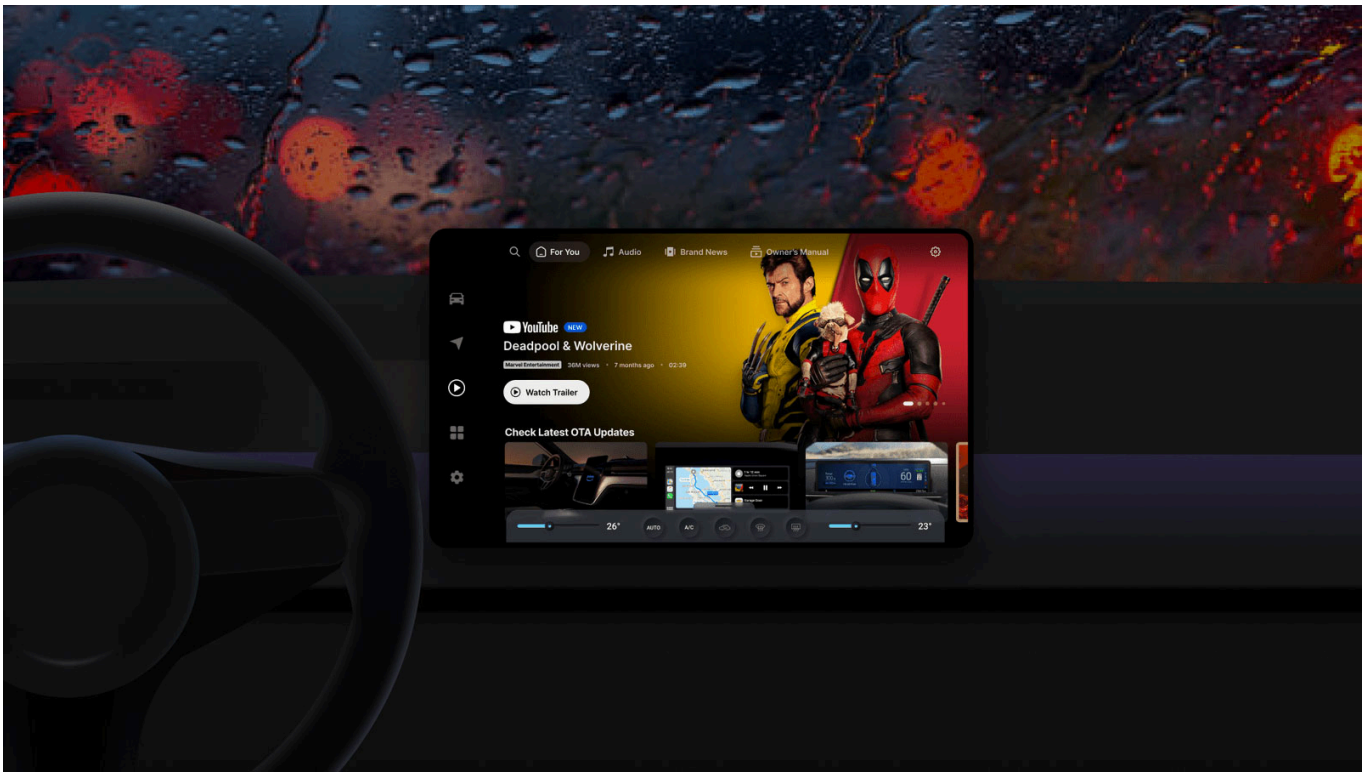
The electric ID.Buzz competitor Zeekr Mix scores points with autonomous driving functions, powered by a large number of sensors including a lidar. The Zeekr 009 Grand is much more striking. The luxury version of the electric van has four seats and a high-quality interior. Zeekr is also taking part in the general arms race with the 001 FR. With 969 kW, the company is at the forefront for the time being. There is no end in sight in the medium term

More news to come….!

Interior News

P3 and 3SS: Infotainment Solutions at CES

INTERIOR NEWS



P3 / 3SS IMAGE

P3 and 3SS demonstrate at CES how vehicle manufacturers can rapidly integrate in-vehicle entertainment as part of an advanced infotainment system with P3's Sparq OS and 3SS's 3Ready Automotive.

Sparq OS is a dynamic and rapidly developing IVI solution developed by P3, based on Android Auto. Sparq OS's cockpit platform includes a diverse app store, smart navigation, digital and personal voice assistant, charging, media and entertainment. It features fully automated over-the-air software and firmware updates, ensuring always-up-to-date functionality and promoting sustainability.

3Ready Automotive is an in-vehicle entertainment solution that can be deployed in a very short time. It is a "powerful technology and content-rich platform", 3SS says, that is available as Entertainment as a Service (EaaS), delivering "super-aggregated entertainment to vehicle displays, abundant with appealing content, apps and services".

With this, automakers can stay in control of their customer experience, branding and feature roadmap with 3Ready Automotive. They can also manage, style, tailor and target the content on-the-fly, remotely, across their fleet, such as promotions, trending video content, social media, and live conferences. Car makers benefit from a long-term loyalty-enhancing always-open line of communication with owners of their vehicles. This also opens multiple new revenue streams, leveraging novel content monetization opportunities, enabled by 3Ready's inherent flexibility.

With the pre-integrated P3 and 3SS platform, auto makers have the opportunity to deliver a diverse entertainment selection including content from the world's most popular services, out-of-the-box, and based on Android Automotive.

Continental's Demo Car with Smart Interaction Technologies

INTERIOR NEWS

CONTINENTAL IMAGE

Continental is presenting a special show vehicle, their ‘Intelligent Vehicle Experience Car’, which focuses on “external communication between humans and automobiles” and can recognize users before they enter the car. The tech solutions that will be demonstrated in this vehicle are expected to go into series production in the next three to five years.

The vehicle demonstrates a solution that provides intuitive, touch-free access to the vehicle using biometrics, which enables the car to recognize users even before they get into the vehicle by interpreting facial and movement characteristics and deriving actions from them, such as opening and starting the vehicle or opening the tailgate in the supermarket parking lot. More importantly, it also identifies persons who are not authorized to use the vehicle and may approach it with criminal intent. In this case, the doors remain locked, and a warning is activated.

CONTINENTAL IMAGE

Continental has combined many different technologies in one demonstrator which perceives its surroundings, interprets the intentions of users, and interacts with them intelligently. Proven sensors are combined with new, 'artificially intelligent' algorithms to create a practical system solution, an advanced vehicle architecture and a highly personalized user experience.

“Biometrics opens up completely new horizons for the mobility of tomorrow,” explained Dr Claudio Longo, head of research and advanced engineering at Continental. For Jean-François Tarabbia, head of architecture and network solutions at Continental, intuitive access is a key component: “The car is on track to become a smart device, similar to a cell phone, which will use biometric technologies to take the user experience to a new level of security and comfort.”

Continental's Invisible Biometrics Sensing Display—a CES Innovation Award winner this year—integrates secure authentication, advanced safety and health features behind an OLED display.

BMW's New Panoramic XXL Vision Display

INTERIOR NEWS

BMW IMAGE

The Panoramic Vision Display, one of the biggest updates in the history of BMW iDrive, has been unveiled at CES. The innovative display is only a few centimeters high, but extends across the full width of the car at the base of the windscreen. The information shown there can be selected intuitively and customized according to personal taste,

There is a wide range of content to choose from: Starting with the expected arrival time while navigation is running, through the remaining range and information about the radio station or other audio sources, to the weather report for the destination or the current air quality, there are countless more or less important content types. The additional display at the bottom of the front screen means that content can be permanently displayed that previously required more or fewer clicks or touches to access.

The lighting mood in the vehicle can be changed with a simple slider. This not only changes the colors on the display, but also those of the surrounding ambient lighting for the interior.

The new infotainment system will debut on board the BMW iX3 at the end of 2025. A few months later, the new i3 will also get the new display. In addition to the electrically powered representatives of the New Class, conventional models will probably also be upgraded with the new technology as part of comprehensive facelifts.

Hyundai Mobis and Zeiss: New Holographic HUD

INTERIOR NEWS

HYUNDAI MOBIS IMAGE

Hyundai Mobis and Zeiss have entered a strategic partnership with the aim of bringing their new holographic HUD technology into mass production by 2027 and optimizing the information display in the vehicle.

The technological basis of the Holographic HUD is a projector developed by Hyundai Mobis that projects content such as driving data, navigation instructions and infotainment displays onto the windshield. Zeiss contributes an ultra-thin, transparent film that is less than 100 micrometers thick. This film uses holographic technology to make the projected content visible by means of light beams. In contrast to conventional head-up displays, which only show basic information, the Holographic HUD enables a significantly larger and more comprehensive display across the entire width of the windshield.

The integration of the technology is intended to increase driving safety by displaying all important information in the driver's direct field of vision, and to expand the design options in the vehicle cockpit. Traditional displays on the dashboard could become superfluous, as the windshield serves as a large display. Another advantage is that passengers can also see content such as entertainment programs projected onto their area of the windscreen without impairing their unobstructed view.

Hyundai Mobis and Zeiss have already developed a functional prototype of the Holographic HUD, which has been presented to international car manufacturers. The two companies plan to expand their collaboration to other holographic applications in the future, including displays for vehicle interiors and exteriors. The aim is to develop further innovations that increase both comfort and safety in the automotive sector.

AUO Smart Cockpit

INTERIOR NEWS

HMI solution provider AUO unveiled their Smart Cockpit 2025 at CES. The showcase, themed *“Infinite Future, Unlimited Possibilities,”* highlights cutting-edge microLED display HMI solutions, blending AUO’s innovative display technology with sustainable, human-centric designs and advanced systems from its subsidiary, BHTC.

The Smart Cockpit 2025 incorporates an array of microLED display HMI solutions that extend across the sunroof, side windows, center console and steering wheel. AUO utilizes the transparent, large-size and flexible advantages of microLED displays to redefine smart cockpit design and expand human-machine engagement services. Meanwhile, in-vehicle computing has also been used to extend its applications to 'AI' and the Internet of Vehicles (IoV), delivering a seamless experience enriched by safer, more comfortable, intelligent and entertaining mobility services for both drivers and passengers.

AUO develops the Morphing Center Control as well with a human-centered approach. Normally, it displays information on the flat surface of the central console. When specific functions are activated, the buttons rise and provide tactile feedback, demonstrating a new way for HMI.

AUO’s Horizon Image Glass integrates the dashboard, central information display and co-driver display through in-vehicle computing solutions to create an integrated panoramic view, providing vehicle occupants with a clear forward vision and infotainment on the road.

Elektrobit's SDV Innovations

INTERIOR NEWS

DVN IMAGES

Elektrobit, a Continental daughter company, is showcasing the industry shift toward software-defined vehicles (SDVs). They updated what they presented last year, with infotainment capabilities and production components.

DVN Interior met with Dr Siegfried Dirr, VP, Head of Engineering Services & Technologies. He highlighted what they call “theming”, like HMI elements, that they can directly incorporate into physical system, after development, kind of off-line into a virtual environment. 'AI' also helped to get more creativity within the cockpit. Linux, which is open-source software, is now used for safety-related applications, helping the whole chain from development to maintenance with a system open to all.

A demonstrator is presented on their booth (pic), with hardware and software demo installed, It is a Next-Gen Digital Cockpit: a futuristic, pillar-to-pillar curved display powered by technologies like AMD hardware, Unreal Engine, and Google Android Automotive.

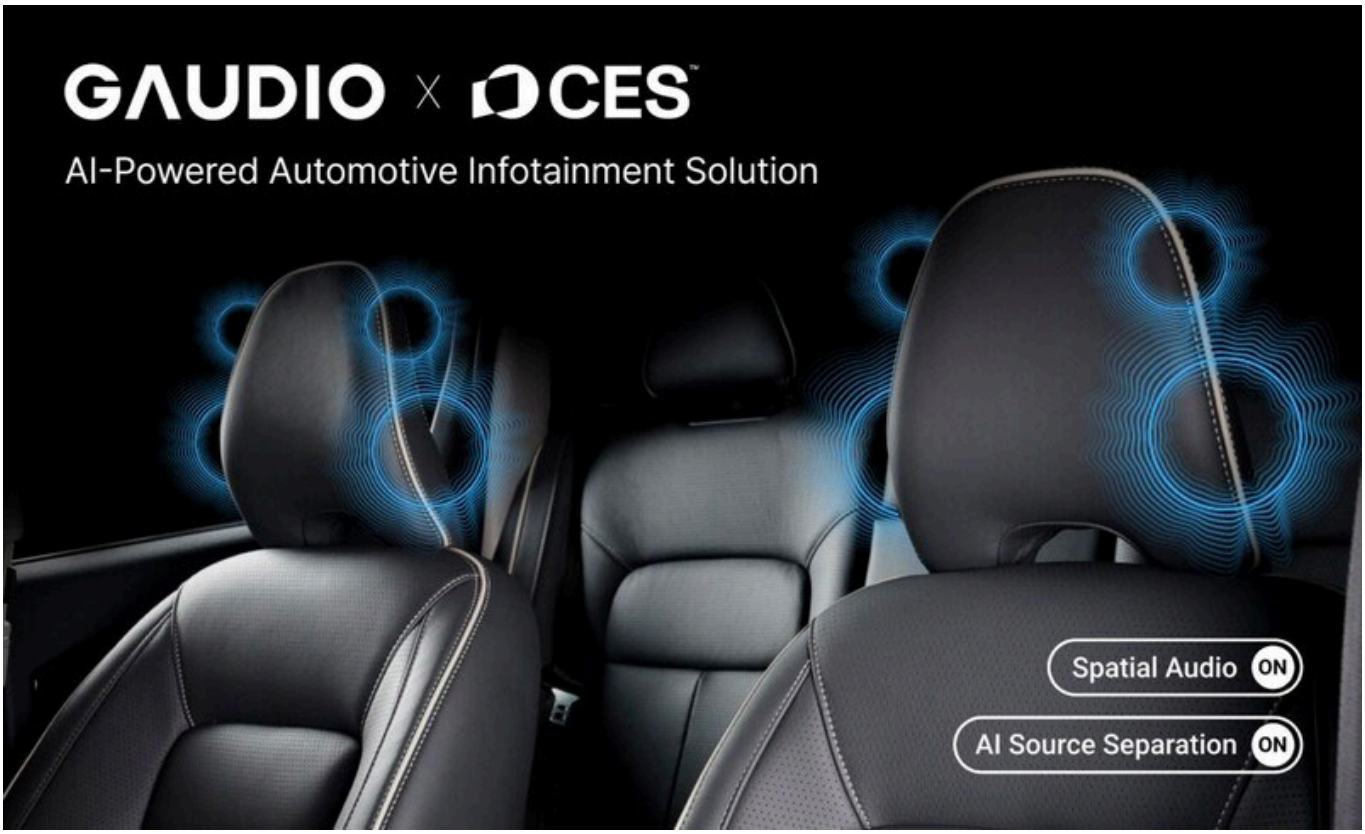
Its virtual software solutions drive efficient development, branding, localization and evolution throughout the vehicle's lifecycle for an elevated user experience. Integrated partner technologies from Elektrobit's SDV ecosystem include AMD automotive-grade hardware, Google Android Automotive and Gemini AI, Epic Games' Unreal Engine for 3D rendering and Here navigation.

They also confirm the power of Android, and theming there allows to develop easily specific and context-based tuning.

They worked directly with automakers including VW, Ford, Honda, and JLR, among others. In collaboration with partners like Sony Honda Mobility, AWS, Siemens, and Sonatus, Elektrobit was involved with the Afeela vehicle; it emphasizes Elektrobit's commitment to open-source solutions for resource-efficient, future-proof SDV development.

Gaudio Lab's Award-Winning 'AI' Audio

INTERIOR NEWS

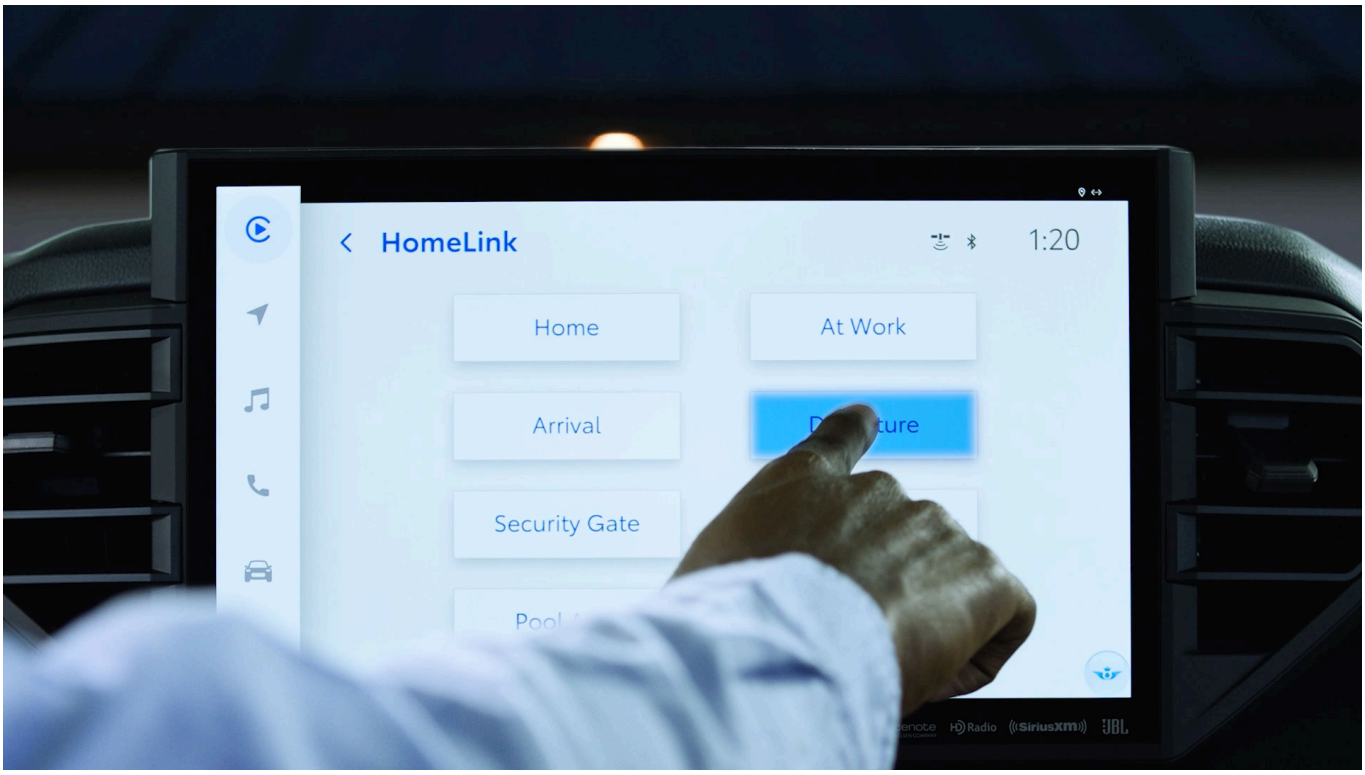


Gaudio Lab, an 'AI' audio technology company and three-time CES Innovation Award winner, is showing their latest solutions this year at CES. Highlights include the “Gaudio Music Replacement,” an 'AI' tool addressing copyright challenges in global video content by automatically replacing copyrighted music with context-appropriate alternatives, and a new automotive audio infotainment system featuring features like vocal removal, panoramic soundscapes, and seat-specific sound preferences.

Gaudio Lab’s award-winning portfolio spans 'AI'-powered content creation, noise reduction, loudness management, and spatial audio technologies. Their booth at CES 2025 features demos of these solutions, including the innovative karaoke feature Gaudio Sing and Gaudio Studio for source separation and noise reduction, further cementing their role as pioneers in 'AI' audio technology.

Gentex Shows Next-Gen HomeLink System

INTERIOR NEWS



GENTEX IMAGE

Gentex is showing the latest version of their HomeLink car-to-home automation system. The updated HomeLink, celebrating its 30th anniversary, integrates seamlessly with Apple CarPlay and Android Auto and supports smart home devices from major brands like Amazon and Samsung SmartThings. It also offers Wi-Fi-enabled control of garage doors via smartphone or vehicle-integrated apps. It unifies the link between a connected car and a smart home.

The new HomeLink employs multiple technologies—RF for entry-critical devices, Long-Range Bluetooth for global compatibility, and cloud-based API integration for smart home systems. Users can control individual devices or trigger pre-set scenes directly from a HomeLink button in their vehicles.

To simplify setup and management, Gentex has introduced a new HomeLink app, which enables device updates, remote garage door activation, and integration with automaker apps and infotainment systems. The system's expanded capabilities ensure HomeLink remains a leader in car-to-home automation, with over 110 million equipped vehicles on the road today.

Gentex also offers HomeLink Smart Home Solutions, a program delivering professionally installed and monitored smart home systems, including lighting, security.

The Design Lounge

New Honda Concepts at CES

THE DESIGN LOUNGE

HONDA IMAGES

COFFEE CORNER
DVN
Interior

Honda showed two concept cars from their 0 series in 2024. These futuristic new models will be launched on the market in 2026. This year, the concepts are also in the spotlight at CES. Both are new electric concept cars, the sedan with a sportier character and the Space-Hub with a huge amount of space in the interior.

The Honda 0 Series is designed as a driver-oriented car, which is also evident in the interior, where you'll find a low seating position and a sporty-looking steering wheel. The sedan has wired steering, so very little input is required.

The Space Hub looks like a real spaceship. The smooth panels and the LED light ring at the back make it stand out from the crowd. The cabin of the Space-Hub is more spacious and looks more like a lounge thanks to the two rows of sofa-like seats. The two people sitting in the back also seem to admire the all-glass roof, which floods the interior with plenty of natural light.

Continental: Emotional Cockpit with Crystal Displays

THE DESIGN LOUNGE

CONTINENTAL IMAGE

Continental and Swarovski Mobility are presenting a new display concept for the vehicle cockpit called “Emotional Cockpit” at CES. The display and user interface consists of two displays set in Swarovski crystal.

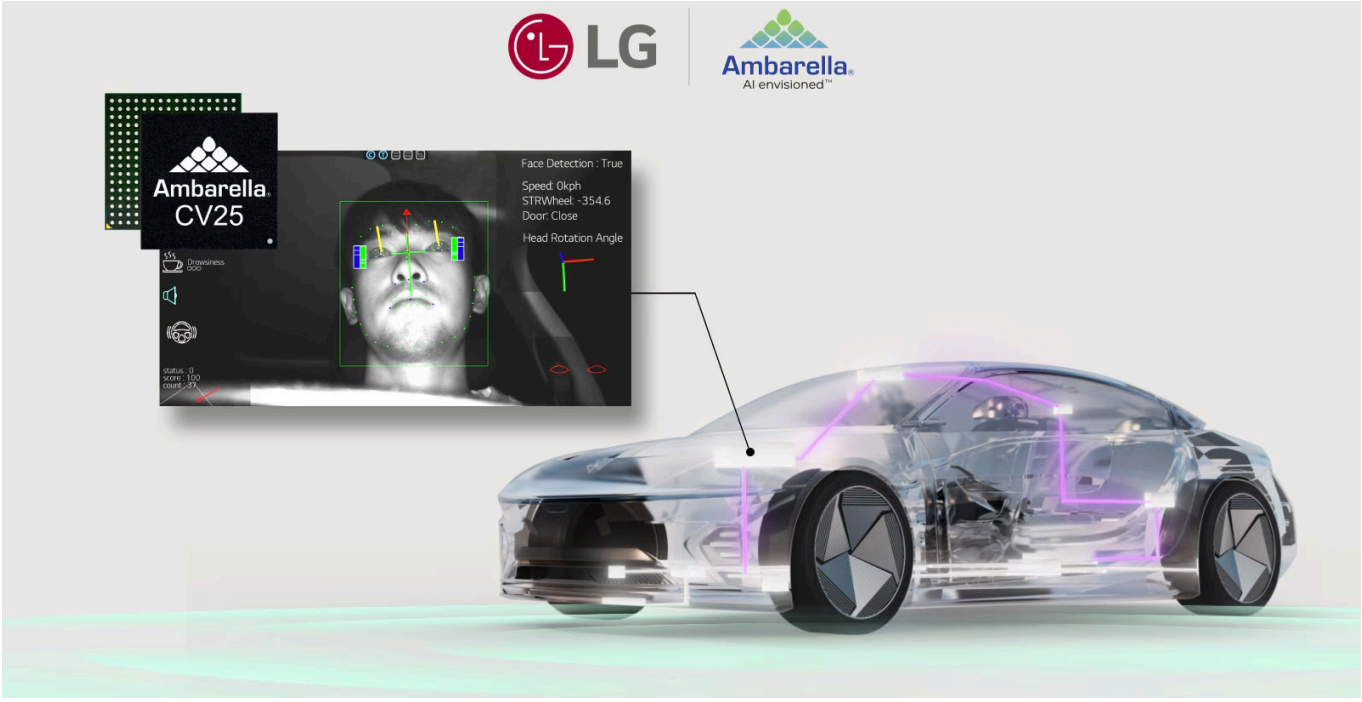
The small upper display is the central input unit for the driver and front passenger. The 3.5-inch display called Widget Crystal works with micro-LED technology, which promises high color brilliance, among other things. The transparent crystal body is intended to create the impression of information floating freely in space. In addition to displaying weather data or the charging status, the small screen also serves as an interaction surface for the 'AI' assistant.

The lower 12.3-inch display is equipped with "Full Array Local Dimming" technology, which enables targeted control of the backlight for higher brightness and richer black levels. A coating called "Aurora Borealis" provides an optical effect on both displays, which uses light reflections to create a colored shimmer that is supposed to resemble the aurora borealis.

General News

LG Electronics and Ambarella: DMS and SoC

GENERAL NEWS



LG IMAGE

LG is showcasing their latest in-cabin solution, developed in partnership with Ambarella. Ambarella worked with LG in close cooperation to integrate the Ambarella CV25 'AI' system-on-chip (SoC) into LG's DMS, which is already in production with a global automaker.

With its industry-leading 'AI' performance per watt, Ambarella's CV25 chipset enables LG's DMS to perform real time analysis of high-resolution video from in-vehicle cameras. In addition to accurate object recognition, this SoC supports smooth high-definition video processing and achieves high energy efficiency, making it ideal for integration with various in-vehicle sensors. The CV25, which is manufactured using 10-nanometer process technology, also facilitates high-quality, detailed imaging in low-light and over a high dynamic range, ensuring stable monitoring regardless of environment, weather or time of day.

Leveraging LG's VisionWare, a key part its portfolio of mobility software, this new DMS can accurately detect subtle eye and head movements of the driver. The system employs AI to determine whether the driver is distracted or drowsy based on these movements. Equipped with the CV25, the DMS can recognize these cues irrespective of the driver's race, gender or age, and provide precise detection and analysis even if the driver is wearing sunglasses, a hat or other accessories.

Additionally, LG is committed to expanding its partnership with Ambarella, as part of efforts to continuously increase performance for the broad range of LG in-cabin solutions while taking the mobility experience to new heights.

LG and Ambarella are both dedicated to improving vehicle safety, and plan to continue working together and delivering solutions that enable automakers to meet the NCAP and General Safety Regulation (GSR) standards. Additionally, LG is an active partner in Ambarella's innovation ecosystem; bringing considerable experience and expertise to this network of industry leaders in 'AI'-based perception, fusion and planning for automotive systems.

Car Year 2024: Sales and Market Shares

GENERAL NEWS

MG, THE ONLY CHINESE BRAND TO ACHIEVE SIGNIFICANT SALES FIGURES IN GERMANY

The “old car nations” still dominate the ranking of the 20 largest manufacturers: 14 come from Europe, the USA, Japan and South Korea. However, the Chinese manufacturers were the only ones worldwide whose sales grew significantly in the first three quarters of this year: BYD was able to increase by a good 30 percent and is now the ninth largest car manufacturer in the world. Geely follows in 11th place with growth of just under 17 per cent.

The situation is quite different for the other manufacturers, almost all of whom suffered more or less significant sales losses compared to the previous year. GM and Stellantis were hit particularly hard, but sales also fell at Toyota, Volkswagen and Hyundai.

Global Sales and Market Shares of the 15 largest Car Manufacturers:

Rang	Konzern	Land	Absatz 2024	Marktanteil 2024	Absatz 2023
1	Toyota	Japan	7.189.400	11,7%	7.784.000
2	Volkswagen	Deutschland	6.163.500	10,0%	6.314.600
3	Hyundai-Kia	Südkorea	4.824.500	7,9%	5.046.400
4	Renault-Nissan-Mitsubishi	Frankreich/Japan	4.450.600	7,2%	4.443.600
5	Stellantis	Europa/USA	4.117.400	6,7%	4.550.000
6	General Motors	USA	3.571.700	5,8%	4.119.500
7	Ford	USA	2.954.700	4,8%	2.976.400
8	Honda	Japan	2.768.800	4,5%	2.845.600
9	BYD	China	2.617.200	4,3%	2.001.500
10	Suzuki	Japan	2.350.200	3,8%	2.239.300
11	Geely	China	1.946.900	3,2%	1.665.700
12	BMW	Deutschland	1.621.800	2,6%	1.696.200
13	Mercedes-Benz	Deutschland	1.569.300	2,6%	1.614.700
14	Tesla	USA	1.253.800	2,0%	1.293.000
15	Changan/Chana	China	1.247.400	2,0%	1.347.300

MARKLINES WITH DATAWRAPPER GRAPHIC

For years, China imported more cars from Europe than vice versa. This year, for the first time, China will overtake Europe in terms of car exports, as Chinese manufacturers are rapidly increasing their market share of electric cars.

As this type of drive will continue to grow in the coming years, the situation is unlikely to change again in the foreseeable future. The EU's increasingly strict CO_2 limits, rising fuel prices and improved models are likely to ensure rising sales figures in the coming years.

At least on the domestic market and in Europe, things are looking good for Germany's manufacturers. In Germany, Volkswagen with all its brands, Mercedes and BMW account for around 55 per cent of new registrations. In Germany, the Volkswagen Group has further increased their market share in recent months.

In the first three quarters, more than one in three new vehicles was made by a VW Group company. Many other manufacturers cannot keep up. Tesla, for example; in Germany, Elon Musk's company no longer makes it into the top ten. Geely is pulling ahead at European level. The Chinese car manufacturer has a market share of 2.5 percent, mainly due to the success of Volvo.